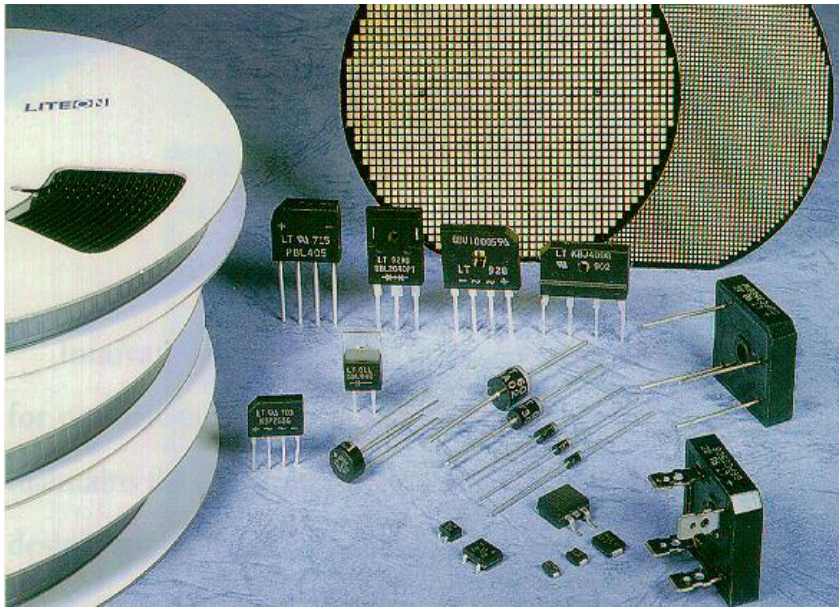


LITE ON

敦南科技股份有限公司

Lite-on Semiconductor Corp.

Product Information



Wafer Road Map

STD/FR/UF
GPP/RGPP
UFGPP

中國
上海廠
3吋晶圓

TVS
Super Fast
Damping Diode
Thyristor

台灣
基隆廠
4吋晶圓

Schottky

美國
堪薩斯城
5吋晶圓

Power MOS
Analog IC
CMOS IC
Power IC

中國
無錫廠
6吋晶圓

Key Products

- **TVS** (Transient Voltage Suppressors)
- **Bridge Rectifiers**
- **Super / Utral Fast** (Diodes Recovery Rectifiers)
- **Power Schottky** (TO-3P / TO-220)
- **T.S.P.D** (Thyristor Surge Protective Device)
- **SCR/TRIAC** (New Products)
- **MOSFET** (Hi ,Mid, Low – Voltage)

Packaging Technologies



T-1



A-405



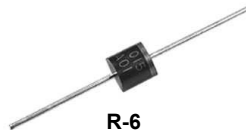
DO-41



DO-15



DO-201AD



R-6

Axial Rectifier



HDDF



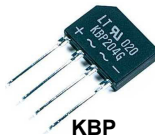
DF-S



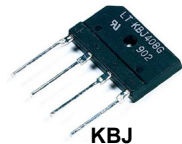
DF-M



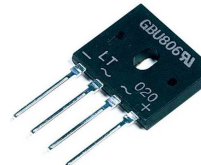
WOG



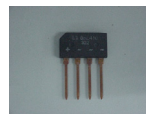
KBP



KBJ

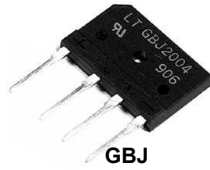


GBU



GBL

Bridge Rectifier



GBJ



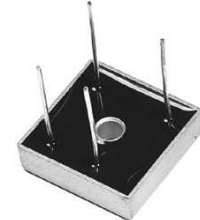
GBPC



GBPC-W



KBPC



KBPC-W



DPAK



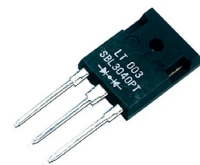
D2PAK



TO-220AC



TO-220AB



TO-3P

Power Rectifier



DO-216AA



SMA



SMB



SMC

SMD Rectifier

Rectifier Product Electrical Category

Type	I_F	V_{BR} (V_{RRM})	V_F	t_{rr}^*
Schottky	1A-60A	20V-200V	0.4V-0.8V	<10ns
Super Fast	1A-20A	50V-600V	0.8V-1.2V	25ns-35ns
Ultra Fast	1A-3A	50V-1000V	1.35V-1.75V	50ns-75ns
Fast Recovery	1A-6A	50V-1000V	1.2V	100ns-500ns
Std Recovery	1A-10A	50V-1000V	1.0V	1us-2us
Bridge Rectifiers	0.8A-35A	50V-1000V	0.95V-1.3V	1us-2us
TVS	400W-5000W	5V-400V	-	-
Type	VDRM (V)	VBO (V)	IPP (A)	
TSPD	58 ~ 360	77 ~ 450	50 ~ 100	-

*us = 10^{-6} (micro) seconds

ns = 10^{-9} (nano) seconds

What kinds of rectifiers are there?

Type	Trr	Application
Std Recovery	1us~2us	Most conventional supplies in household appliances, audio etc.
Fast Recovery	100ns~500ns	Switching power supply (up to 30 KHz)
Ultra Fast	50ns~75ns	Switching power supply (up to 60 KHz)
Super Fast	25ns~35ns	Switching power supply (up to 100 KHz)
Schottky Barrier Diode	<10ns	Switching power supply: 3.3/5/12/24V Output (secondary side)

*us = 10^{-6} (Micro seconds)

**ns = 10^{-9} (Nano seconds)

Diode & Rectifier Product Package Category

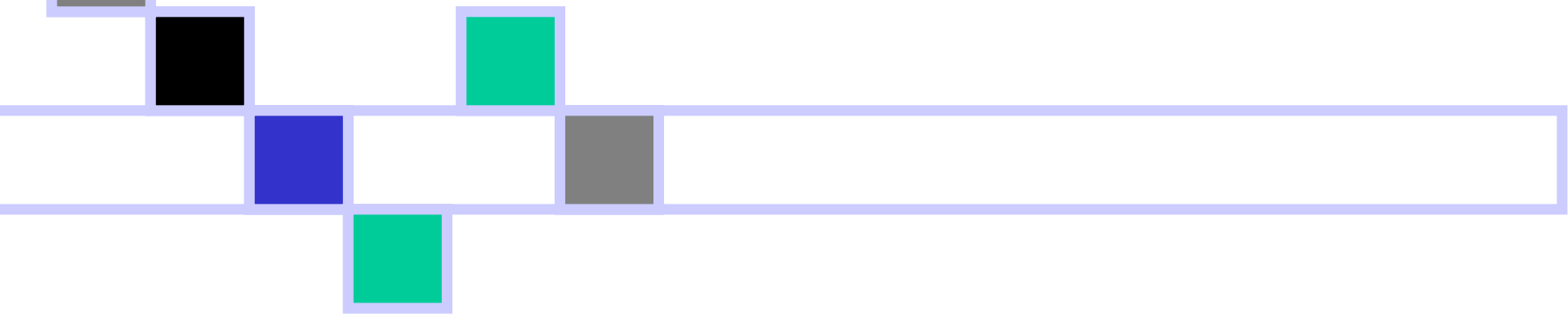
Package	Typ	SMD	TO-220	TO-3P	Bridge	Axial Lead	LT Mite
Schottky		✓	✓	✓		✓	✓
Super Fast	GPP	✓	✓			✓	
Ultra Fast	O/J					✓	
	GPP	✓				✓	
Fast Recovery	O/J					✓	
	GPP	✓			✓	✓	
Std Recovery	O/J				✓	✓	
	GPP				✓	✓	✓
TVS		✓				✓	
TSPD		✓					

O/J = Open Junction

GPP = Glass Passivated Package

SKY = Schottky

TVS = Transient Voltage Suppressor











LITE ON SEMI. TVS

Axial Lead & SMD

Your effective power management partner












TVS APPLICATION

Outline Type		Stan-off voltage & Power dissipation	Typical P/N	 Consumer	 Power Supply	 Telecom	 Industrial	 Automotive
SMA		5.0V to 170V 400 Watts	SMAJ5.0(A),SMAJ12(C)(A) SMAJ14A,SMAJ15(C)(A) SMAJ16C,SMAJ18A SMAJ20A,SMAJ24C SMAJ30C,SMAJ36CA SMAJ75A,SMAJ85A SMAJ88CA,SMAJ150A SMAJ170	*	*	*	*	*
SMB		5.0V to 170V 600 Watts	SMBJ5.0(C)(A),SMBJ6.0(C)A SMBJ12(C)(A),SMBJ15(C)(A) SMBJ16A,SMBJ20C(A) SMBJ24C(A),SMBJ26A SMBJ33C,SMBJ40CA SMBJ160A,SMBJ170CA	*	*	*	*	*
SMC		5.0V to 170V 1500~3000 Watts	SMCJ5.0,SMC12CA SMCJ13A,SMCJ15(C)(A) SMCJ24(C)(A),SMCJ26(C)(A) SMCJ28(C)(A),SMCJ33CA SMCJ36(C)(A),SMCJ40(C)(A) SMCJ150CA,SMCJ170CA		*	*	*	*

Application field :

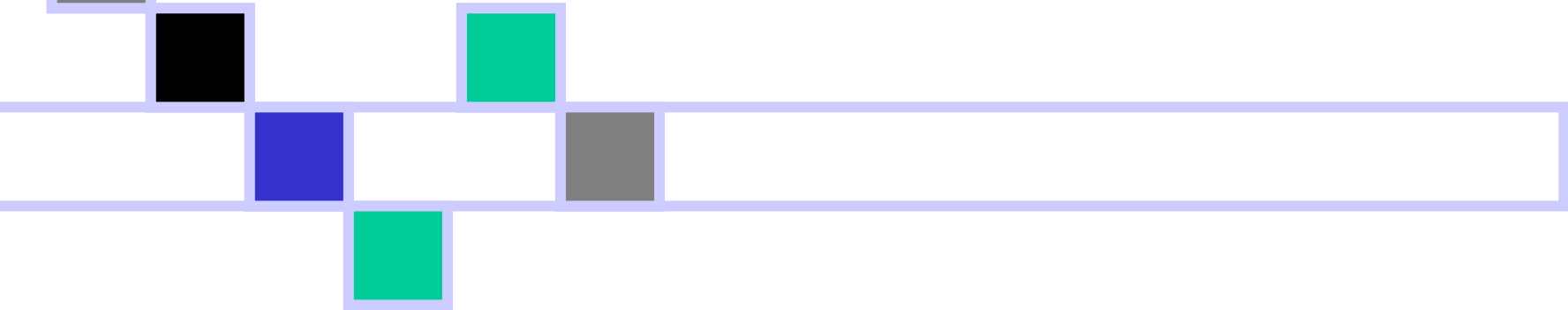
1. **Consumer** : TV , Monitor , Printer , Video Projector , Stereo Amplifier , Fax Machine .
2. **Power Supply** : S.M.P.S , Adapter , Battery Charger .
3. **Telecom** : Set-Top Box , PBX System , Transmitter ,
4. **Industrial** : Test Equipment , Solenoid Control , Solar Power System .
5. **Automotive** : Engine Cooling , ABS Control , Airbag , Window Control , Wiper Module .

TVS APPLICATION

Outline Type		Stan-off voltage & Power dissipation	Typical P/N	 Consumer	 Power Supply	 Telecom	 Industrial	 Automotive
DO-41		6.8V to 440V 400 Watts	P4KE6.8CA,P4KE27(C) P4KE36C,P4KE68(C)A P4KE120,P4KE180(C)A P4KE200(A),P4KE300(C)(A) P4KE400(A),P4KE440(C)(A)	*	*	*	*	*
DO-15		5.0V to 170V 500 Watts	SA5.0A,SA8.5CA,SA10A SA11CA,SA24CA,SA30CA SA43A,SA51CA,SA70CA	*	*	*		*
		6.8V to 400V 600 Watts	P6KE6.8(C)A,P6KE12(A) P6KE120CA,P6KE150(A) P6KE180(A),P6KE200CA P6KE220CA,P6KE300CA P6KE400(A) P6KE440CA	*	*	*	*	*
DO-201		6.8V to 400V 1500 Watts	1.5KE6.8CA,1.5KE11CA 1.5KE33C(A),1.5KE180A 1.5KE200C(A),1.5KE220C(A) 1.5KEE300A,1.5KE350(A) 1.5KE400(A)	*	*	*	*	*
R-6		5.0V to 180V 3000~5000 Watts	5KP5.0A,5KP8.5A,5KP12A 5KP20A,5KP24A,5KP30A 5KP36A,5KP45A,5KP51A 5KP110A	*	*	*	*	*

Application field :

1. **Consumer** : TV , Monitor , Printer , Video Projector , Stereo Amplifier , Fax Machine .
2. **Power Supply** : S.M.P.S , Adapter , Battery Charger .
3. **Telecom** : Set-Top Box , PBX System , Transmitter ,
4. **Industrial** : Test Equipment , Solenoid Control , Solar Power System .
5. **Automotive** : Engine Cooling , ABS Control , Airbag , Window Control , Wiper Module .





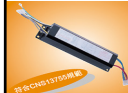









LITE ON SEMI. BRIDGE

Your effective power management partner








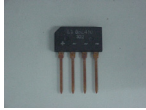

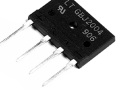




LITE ON SEMI. GPP BRIDGE APPLICATION

Outline Type		Ampere	Typical P/N	 Consumer	 Power supply	 Telecom	 Industrial	 Ballast
HDDF		0.8A	HD04. HD06. HD08.	*	*	*	*	*
DF-S		1A.1.5A	DF005S. DF01S. DF02S. DF04S. DF06S. DF08S. DF10S. DF1506S	*	*	*	*	*
DF-M		1A.1.5A	DF02M. DF005M. DF04M. DF06M. DF08M. DF10M	*	*	*	*	*
WOG		1.5A.2A	W04G.W06G.W08G. 2W06G. 2W08G	*	*		*	
KBP		1.5A.2A.4A	KBP04G.KBP08G.KBP202G KBP206G.KBP208G	*	*	*	*	*
KBJ		4A.6A	KBJ406. KBJ408 KBJ606. KBJ608	*	*		*	
GBU		4A.6A. 8A.10A	GBU404.GBU406.GBU408 GBU608.GBU608.GBU804 GBU806.GBU808.GBU1008	*	*		*	

Application field :

1. **Consumer** : TV , Monitor , Printer , Scanner , Video Camera , Air Conditioner .
2. **Power Supply** : S.M.P.S , AC Adapter , DC/AC Inverter , Converter , Battery Charger .
3. **Telecom** : Set-Top Box , Cable Modem , ADSL/SDSL Modem .
4. **Industrial** : Test Equipment , Flow meter , Motor .
5. **Ballast**


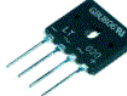



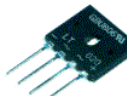
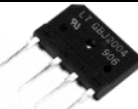



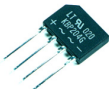
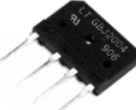
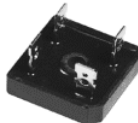


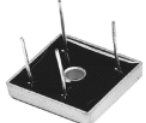



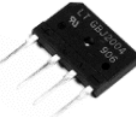

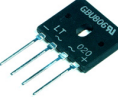
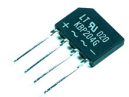
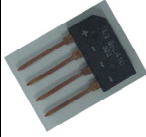

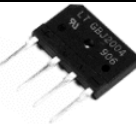
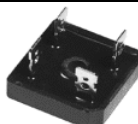
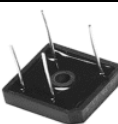



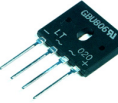
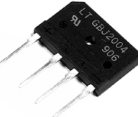
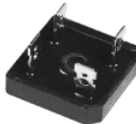
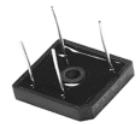

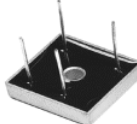
LITE ON SEMI. GPP BRIDGE APPLICATION

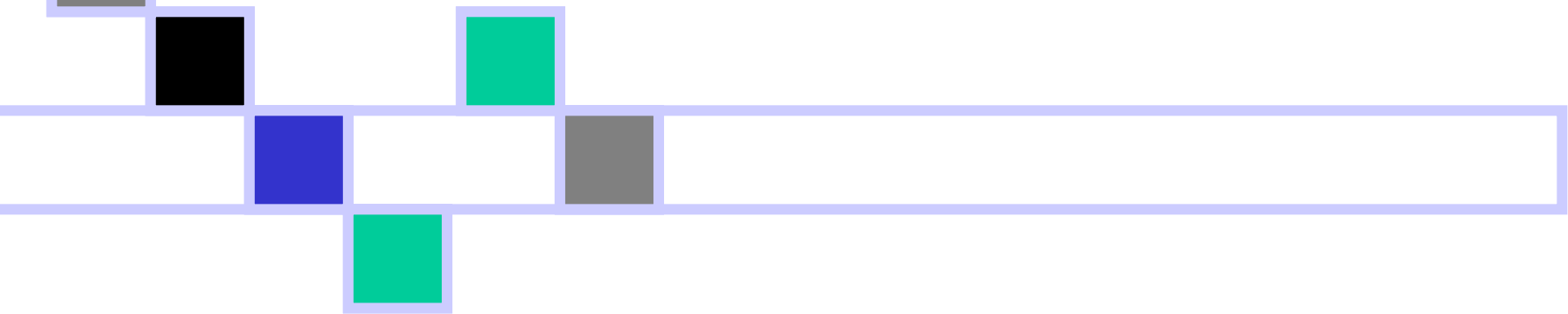
Outline Type		Ampere	Part Number	 Consumer	 Power supply	 Telecom	 Industrial	 Ballast
GBL		2A.4A	GBL04. GBL06.	*	*		*	
PBL (Cell Bridge)		3A.4A	PBL404. PBL405.	*	*		*	
GBJ		6A.8A.10A 15A.20A	GBJ606. GBJ608. GBJ1008 GBJ1504. GBJ1506 GBJ2504. GBJ2506	*	*		*	
GBPC		15A.25A. 35A	GBPC2502. GBPC2504. GBPC2506. GBPC3502 GBPC3504. GBPC3506	*	*		*	
GBPC-W		15A.25A. 35A	GBPC1506W. GBPC1508W GBPV2508W. GBPC3504W GBPC3506W. GBPC3508W	*	*		*	
KBPC-G		15A.25A 35A	KBPC1506G.KBPC2508G KBPC3506G	*	*		*	
KBPC-GW		15A.25A 35A	KBPC1506GW KBPC2506GW KBPC3506GW	*	*		*	

Application field :

1. **Consumer** : TV , Monitor , Printer , Scanner , Video Camera , Air Conditioner .
2. **Power Supply** : S.M.P.S , AC Adapter , DC/AC Inverter , Converter , Battery Charger .
3. **Telecom** : Set-Top Box , Cable Modem , ADSL/SDSL Modem .
4. **Industrial** : Test Equipment , Flow meter , Motor .
5. **Ballast**

Bridge Packaging Technologies

0.8A	 HDDF					8.0A	 GBU80X	 GBJ80X			
1.0A	 DFS	 DFM				10A	 GBU	 GBJ			
1.5A	 DFS	 DFM	 WOG	 KBP		15A	 GBJ	 GBPC	 GBPC-W	 KBPC-G	 KBPC-GW
2.0A	 WOG	 KBP	 GBL			20A	 GBJ				
4.0A	 KBP	 KBJ	 GBU	 GBL	 PBL	25A	 GBJ	 GBPC	 GBPC-W	 KBPC-G	 KBPC-GW
6.0A	 KBJ	 GBU	 GBJ			35A	 GBPC	 GBPC-W	 KBPC-G	 KBPC-GW	



LITE ON SEMI.

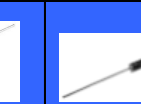
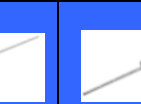
Super Fast & Ultra Fast

Axial Lead & SMD

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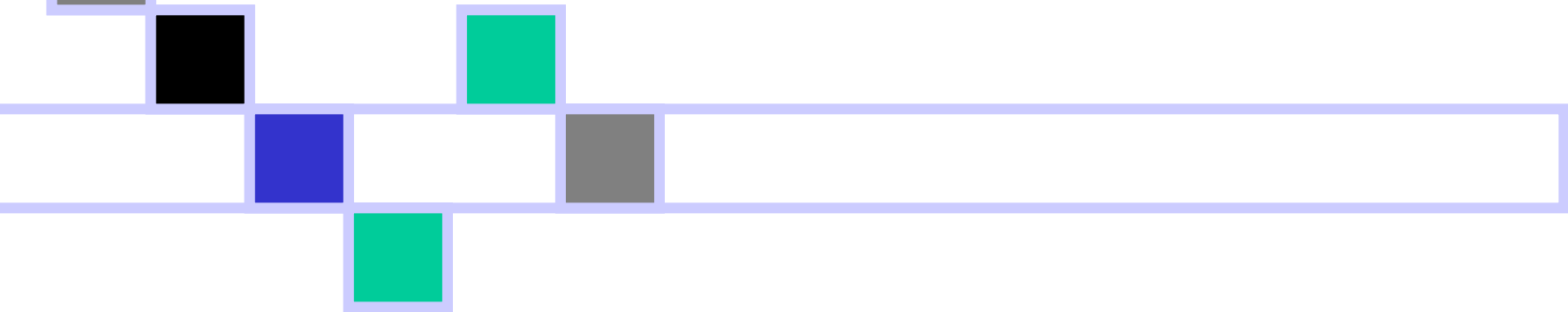


LITE ON DIODES APPLICATION NOTE

Package Type							Io(A)	VR(V)	VF(V)	TRR(nS)
	T-1	A-405	DO-41	DO-15	DO-201AD	R-6				
STD.	D1G-7G	1N4001L~07L	1N4001(G)-07(G)				1.0	50~1000	1.0	1000~2000
			1N5391S~99S	1N5391~99			1.5			
				LT1501(G)-07(G)			2.0			
				LT2A01(G)-07(G)			3.0			
					1N5400(G)-08(G)		6.0			
						LT6A01~07	10			
						LT10A01~05				
Fast Recovery		1N4933(G)L~37(G)L	1N4933(G)-37(G)				1.0	50~1000	1.2	100~500
		PR1001(G)L~07(G)L	PR1001(G)-07(G)				1.5			
			PR1501(G)S~07(G)S	PR1501(G)-07(G)			2.0			
				PR2001(G)-07(G)			3.0			
					PR3001(G)-07(G)		6.0			
						PR6001~07				
Ultra Fast			UF1001(M)-07(M)				1.0	50~1000	1.35~1.75	50~75
			UG1001(M)-07(M)				1.5			
			UF1501(M)S~07(M)S	UF1501(M)-07(M)			2.0			
				UF2001(M)-07(M)			3.0			
				UG2001(M)-07(M)						
					UF3001(M)-07(M)					
					UG3001(M)-07(M)					

LITE ON DIODES APPLICATION NOTE

Package Type							Io(A)	VR(V)	VF(V)	TRR(nS)		
	T-1	A-405	DO-41	DO-15	DO-201AD	R-6						
Super Fast			SF10BG~JG				1.0	50~600	0.8~1.2	25~35		
			MUR120~40				2.0					
				SF20BG~JG			3.0					
					SF30BG~JG		4.0					
					SF31DG~JG		5.0					
					SF40BG~JG							
Schottky			1N5817~19				1.0	20~100	0.4~0.8	< 15		
			SB120~1100				2.0					
				SB220~2100			3.0					
					1N5820~22		5.0					
					SB320~3100		8.0					
					SB520~5100							
Application	Power Supply & Adaptor  		Computer & Consumer  		Industrial 		Telecom 		Automotive 		Lighting 	











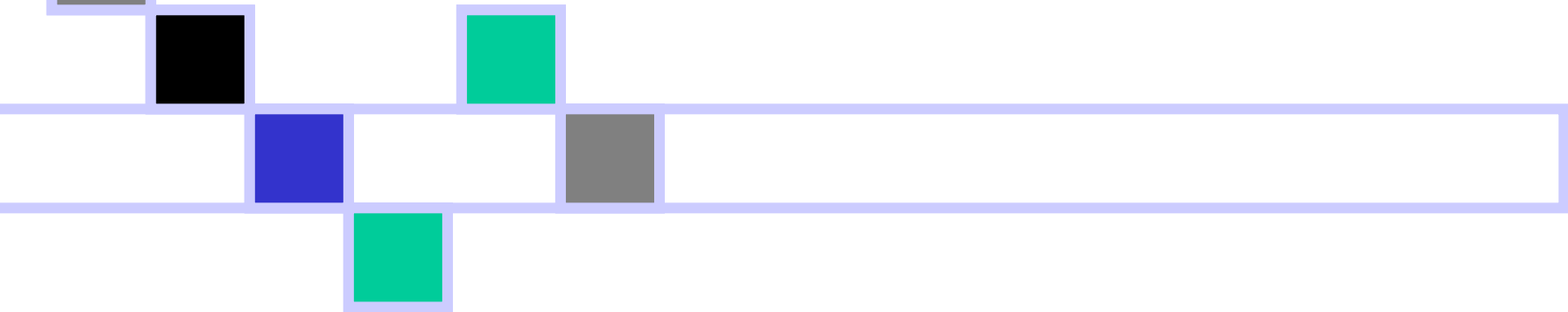
LITE ON SEMI. SMD Diodes

Your effective power management partner



LITE ON SMD APPLICATION NOTE

Package Type	 DO216AA	 SMA	 SMB	 SMC	Io(A)	VR(V)	VF(V)	TRR(nS)	APPLICATION	
STD.	MS1B ~ 1M	S1A ~ 1M	S1AB ~ 1MB		1.0	50~1000	1.1~1.15	1000~2000	  Power Supply	
		S2AA ~ 2MA	S2A ~ 2M		1.5					
					2.0					
			S3AB ~ 3MB	S3A ~ 3M	3.0					
				S5AC ~ 5MC	5.0					
FAST RECOVERY		RS1A ~ 1M	RS1AB ~ 1MB		1.0	50~1000	1.3	150~500	      Computer / Consumer	
		RS2AA ~ 2MA	RS2A ~ 2M		1.5					
					2.0					
			RS3AB ~ 3MB	RS3A ~ 3M	3.0					
ULTRA FAST		US1A ~ 1M			1.0	50~1000	1.0~1.7	50~75		
					1.5					
SUPER FAST		ES1A ~ 1M	ES1AB ~ 1JB		1.0	50~1000	0.875~1.7	25~50		
		FS1A ~ 1J								
		MURS120 ~ 160								
		ES2AA ~ 2JA	ES2A ~ 2M		2.0					
			FS2A ~ 2J							
			ES3AB ~ 3JB	ES3A ~ 3M FS3A ~ 3J						3.0
SCHOTTKY	MB120E	B5817 ~ 5819			1.0	20~100	0.38~0.79	< 15		
	MB120L ~ 130L	B120 ~ B1100								
	MB140	B130L								
			B120B ~ 160B							
			B130LB ~ 1100LB							
			B140HB		2.0					
		B220A ~ 260A	B220 ~ B2100							
		B240LA	B240L							
		B320A ~ 360A	B320B ~ 360B	B320 ~ 3100						3.0
		B340LA	B340LB							
			B520C ~ 560C	5.0						









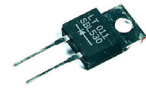

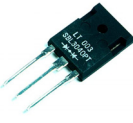
LITE ON SEMI.

Power Schottky

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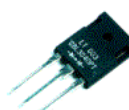
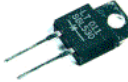


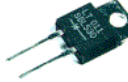




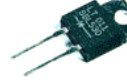

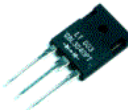


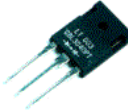

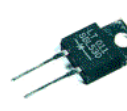


LITE ON SEMI. Power Schottky APPLICATION

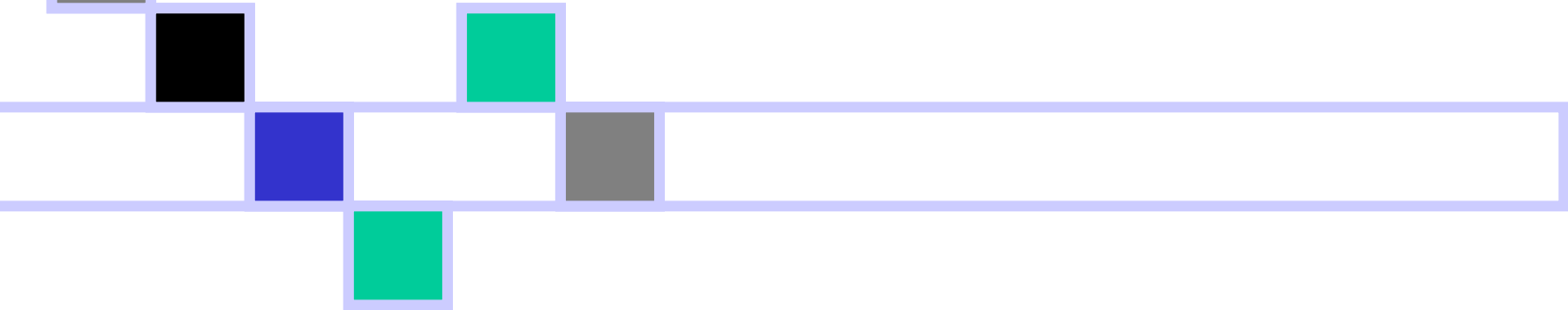
Outline Type		Ampere	Typical P/N	 Consumer	 Power Supply	 Telecom	 Industrial	 Automotive
D ² PAK		10A.15A 16A.20A 25A.30A	MBRB1535.MBRB1545. SBG1040.SBG1640CT	*	*	*	*	*
TO-220AC		5A.7A.8A 10A.16A	MBR745.MBR750.MRB760 MBR1035.MBR1045.MBR1060. MBR1090.MBR10100 MBR1645.MBR1660.SBL1040 MBR3045CT	*	*	*	*	*
TO-220AB		10A.15A 16A.20A 25A.30A	MBR1535CT MBR1560CT.MBR2045CT MBR2035CT. MBR2060CT.MBR2545CT MBR20100CT. SBL1040CT.SBL1640CT	*	*	*	*	*
TO-3P		16A.20A 30A.40A 60A	MBR2045PT.MBR3045PT MBR3060PT.MBR4045PT. MBR4060PT.SBL2040PT. SBL3040PT	*	*	*	*	*

Application field :

1. **Consumer** : TV , Monitor , Printer , Video Projector , Stereo Amplifier , Fax Machine .
2. **Power Supply** : S.M.P.S , Adapter , Battery Charger .
3. **Telecom** : Set-Top Box , PBX System , Transmitter ,
4. **Industrial** : Test Equipment , Solenoid Control , Solar Power System .
5. **Automotive** : Engine Cooling , ABS Control , Airbag , Window Control , Wiper Module .

Power Schottky Packaging Technologies

5.0A	 TO-220AC				20A	 D ² PAK	 TO-220AB	 TO-3P
7.0A	 TO-220AC				25A	 D ² PAK	 TO-220AB	
8.0A	 TO-220AC				30A	 D ² PAK	 TO-220AB	 TO-3P
10A	 D ² PAK	 TO-220AC	 TO-220AB		40A	 TO-3P		
15A	 D ² PAK	 TO-220AB			60A	 TO-3P		
16A	 D ² PAK	 TO-220AC	 TO-220AB	 TO-3P				










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LITE ON - SEMI TSPD APPLICATION

	PART NUMBER	V_{DRM}	V_{SO}	IPP				
		Min(V)	Max(μA)	(A)	Telephone	Fax M/C	MFP	Cable Modem
 SMA	TA0640L~TA3500L TA0640M~TA3500M	58~ 320	77~ 400	50 80	V	V	V	V
 SMB	TB0640L~TB3500L TB0640M~TB3500M TB0640H~TB3500H	58~ 320	77~ 400	50 80 100	V	V	V	V
 SMC	TC0640H~TC3500H	58~ 320	77~ 400	100	V	V	V	V

LITE ON - SEMI LT MITE APPLICATION

	PART NUMBER	VR	VF	IR				
		(V)	(V)	(mA)	Mobile Phone	PDA	Note Book	Digital Camera
 DO-216AA	MB120E MB 120L~MB130L MB140	20 20~ 30 40	0.53 0.38~0.48 0.55	0.01 0.41 0.5	V	V	V	V



LITE ON SEMI.

SCR/TRIAC

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New Issuance Products

• SCR Series

TO-92 0.8A (serial)

S08M02- xxx A 100V,200V,400V,600V / (0.8A) / 200uA

S08U25- xxx A 100V,200V,400V,600V / (0.8A) / 25uA

TO-220 8A/12A (serial)

S8M02- xxx B 400V,600V,800V / (8A) / 200uA

S8M15- xxx B 400V,600V,800V / (8A) / 15mA

S12M15- xxx B 400V,600V,800V / (12A) / 15mA

• Triac Series

TO-92 0.8A(serial)

T08M3F- xxx A 400V,600V(0.8A)/3mA

T08M5F- xxx A 400V,600V (0.8A)/5mA

TO-220 4A/8A (serial)

T4M3F- 600B

T4M10T- 600B

T4M35T-600B

T8M5T-xxx B 400V,600V, (8A)/5mA

T8M25F- xxx B 400V,600V, (8A)/25mA

T8M35T-xxx B 400V,600V,(8A)/35mA

T8M50T-xxx B 400V,600V, (8A)/50mA

TO-220 12A/16A (serial)

T8M50F-600B

T12M5T-600B

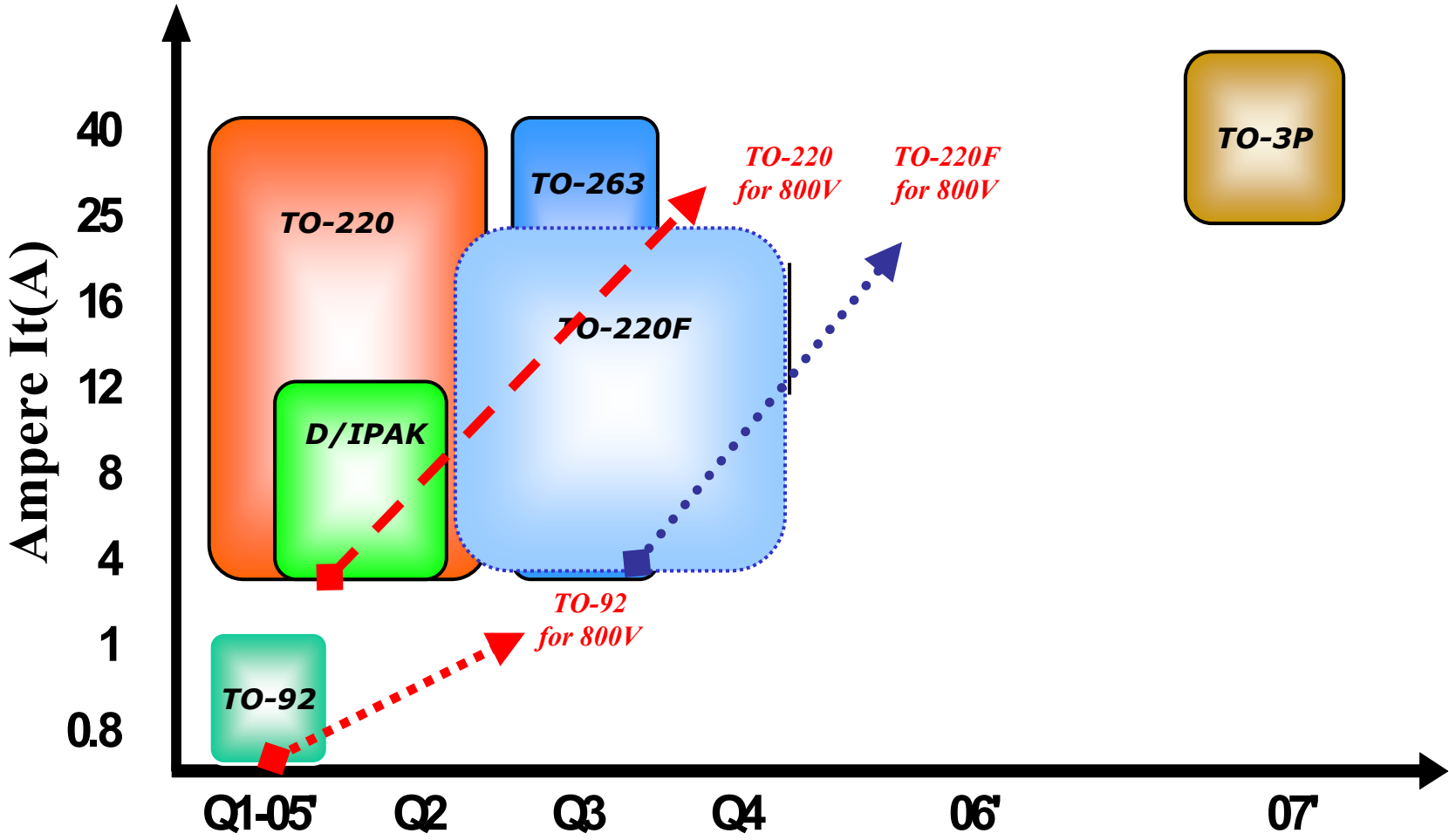
T12M35T-600B

T12M50F-600B

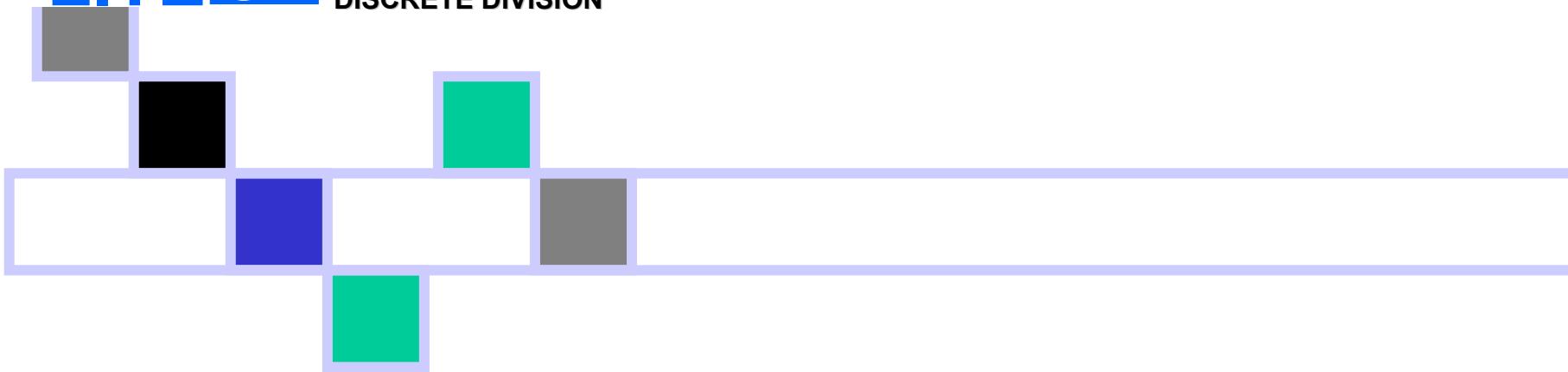
T16M5T-600B

T16M25T-600B

Thyristor Package Roadmap (SCR/TRIAC)



■ Block mean 600V product TO-92 is ready for 700V --- stripe mean 800V



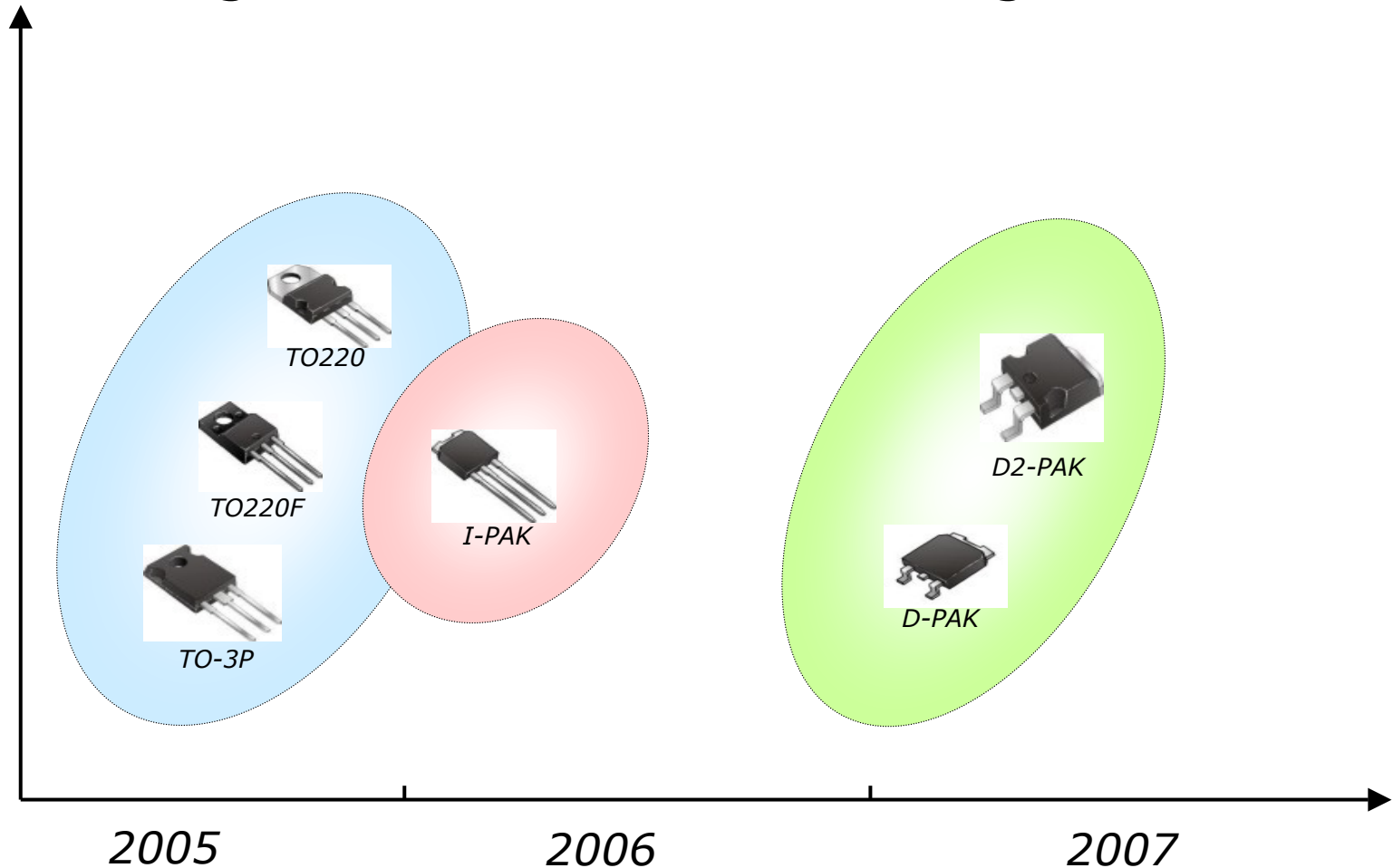
LITE ON SEMI. MOSFET

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MOSFET Road-Map

	2005	2006	2007	2008	2009
High Voltage	<p>V-FET . New stripe design + Patent free</p> <p>200V - LVP630 600V - LVPF7N60 900V - LVA9N90,</p>	<p>200V - 640 600V - 1/2/4NF60 600V - 7/9NF60 650V - 7NF65 800V - 7NF80</p>	<p>V2-FET . New stripe + High performance . 200V~ 1000V</p>	<p>V3-FET . Super Junction . 500V ~ 1000V</p>	
Low Voltage		<p>V2-FET . 60V~ 150V</p> <p>60V - 60N06 80V - 70N08 100V - 40N10 Product: line-up</p>		<p>Trench MOSFET . New Trench Structure . < 100V vehicle vehicle . Product line-up</p>	<p>. >150V</p>

High-Power MOS FETs Package Trend



④ Part Number Description

Part Number System

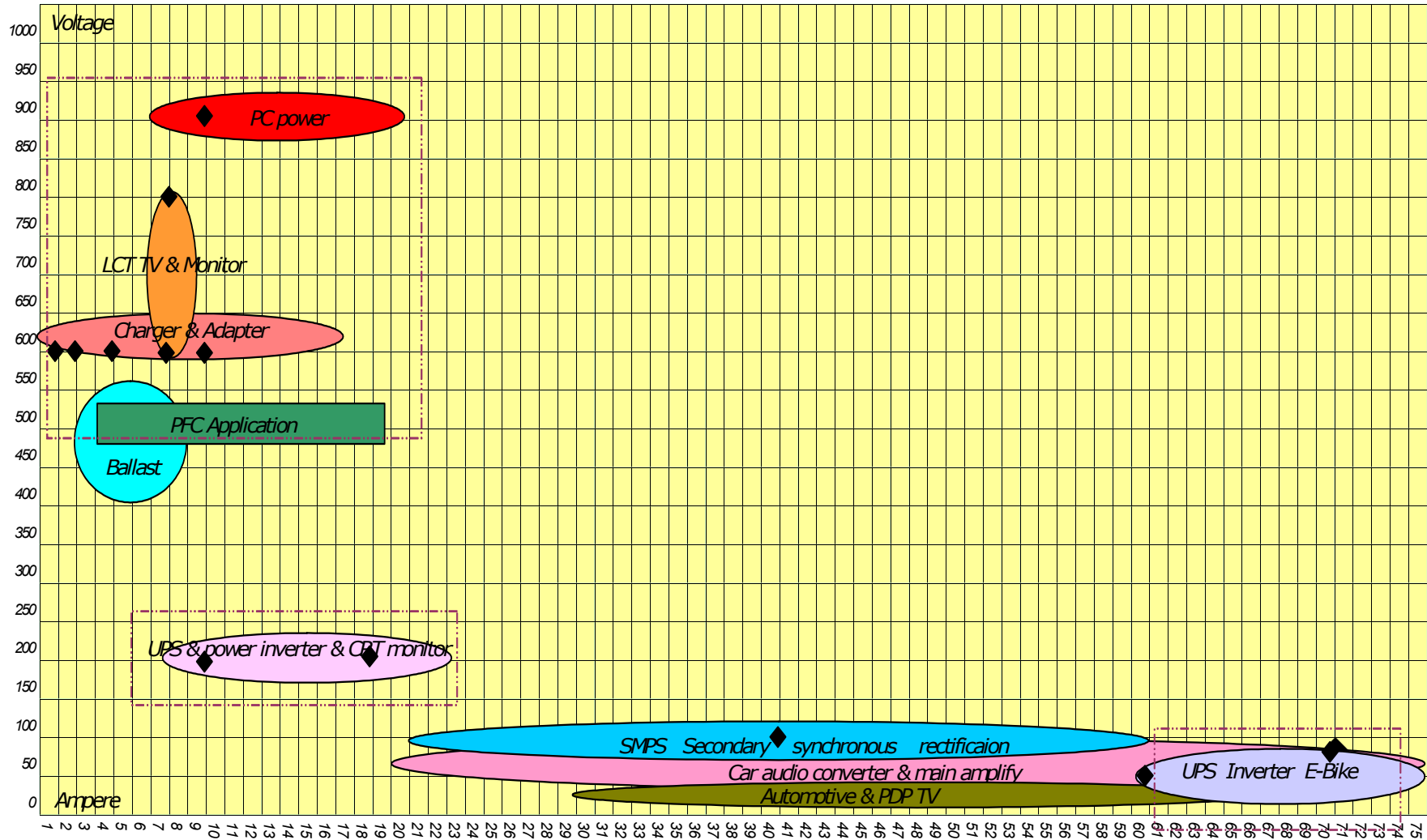
L	V	PF	7	N	60	-	-
Lite-On	Device	Package	Current	Channel	Voltage	Vth Level	Version

V : VFET	TO-92 : N	Amperes	MOSFET	02 : 20V	MOSFET	MOSFET
U : UFET(VFET2)	D-PAK : D		N : N-Ch	03 : 30V	- : Standard	- : 0 Version
T : Trench-FET	I-PAK : U		P : P-Ch	06 : 60V	L : Logic	A : 1 Version
G : IGBT	D^2-PAK : B			10 : 100V	P : Pure Logic	B : 2 Version
	I^2-PAK : I			20 : 200V		
	TO-220 : P			25 : 250V		
	TO-220F : PF			30 : 300V		
	TO-126 : E			40 : 400V		
	TO-3P : A			50 : 500V		
	TO-3PF : AF			60 : 600V		
	TO-264 : L			70 : 700V		
				80 : 800V		
				90 : 900V		
				100 : 1000V		
				120 : 1200V		

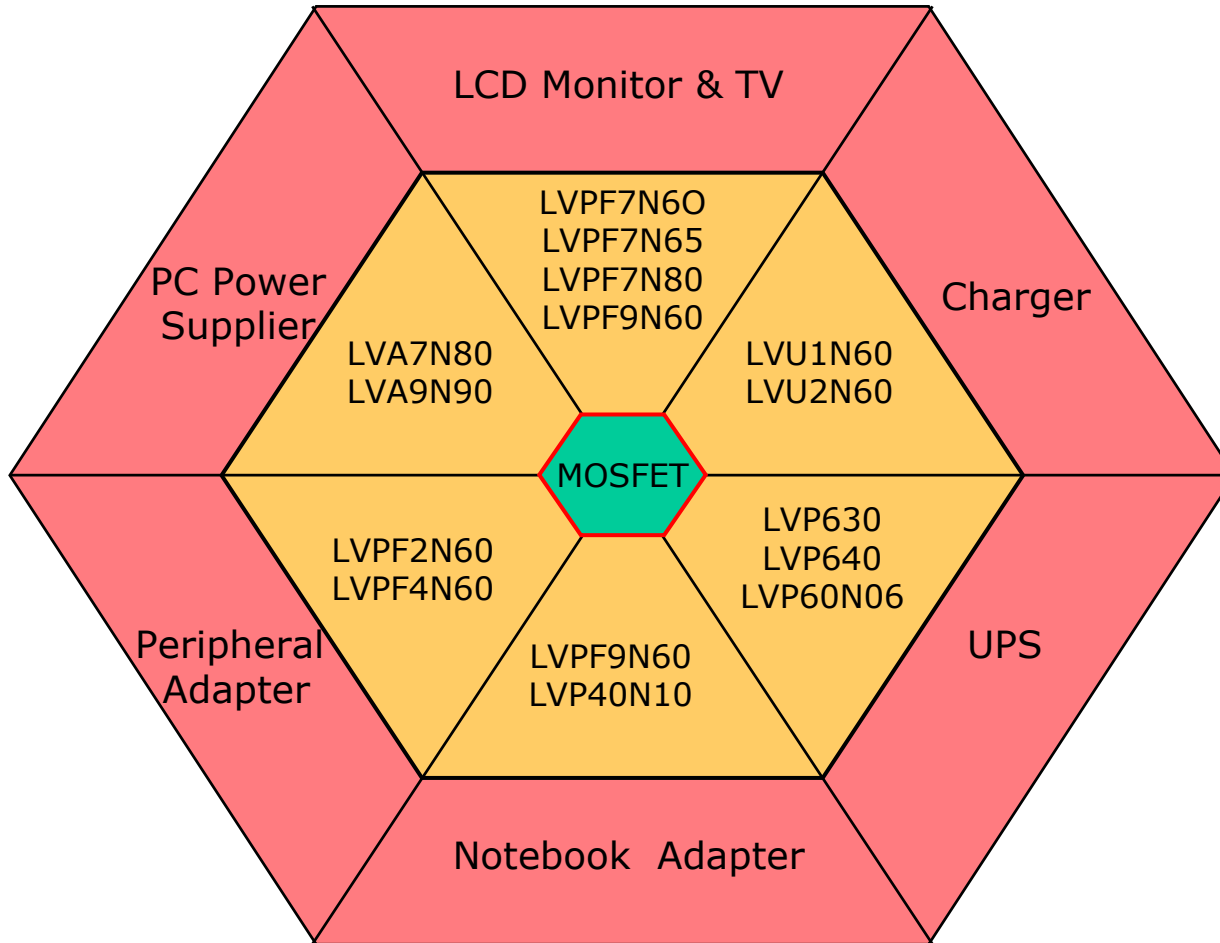
Product Roadmap with MOSFET

Lite-On P/N	Package	Id (A)	Voltage (V)	2005						2006						
				7	8	9	10	11	12	1	2	3	4	5	6	
LVP60N06	TO220	60	60									S	M			
LVP70N80	TO220	70	80									S	M			
LVP80N10	TO220	180	100									S	M			
LVP630	TO220	9.5	200					S	M							
LVP640	TO220	19	200							S	M					
LVU1N60	I-PAK	1	600								S	M				
LVPF2N60	TO220F	2	600							S	M					
LVU2N60	I-PAK	2	600							S	M					
LVPF4N60	TO220F	4	600							S	M					
LVPF7N60	TO220F	7	600					S	M							
LVPF9N60	TO220F	9	600								S	M				
LVP7N65	TO220F	7	650								S	M				
LVPF7N80	TO220F	7	800								S	M				
LVA7N80	TO3P	7	800								S	M				
LVA9N90	TO3P	9	900					S	M							

The Power MOSFET Application Map



Power MOSFET Product Portfolio Chart



Cross reference with MOSFET

V-FET	Liteon Product	Competitor		
		Fairchild	STM	Toshiba
Vehicle (3 products)	LVP630 LVP7N60 LVA9N90	FQP630 FQP7N60 FQA9N90	IRF630 STF9NK60ZD STW9NK90Z	2SK2350 2SK2544/2SK3667 2SK2611
Line -up (10 products)	LVP640 LVU1N60 LVPF2N60 LVPF4N60 LVPF7N80 LVPF9N60 LVA7N80 LVA9N90 LVP60N06 LVP70N08 LVP40N10	FQP19N20 FQU1N60 FQPF2N60 FQPF4N60 FQPF7N80 FQPF9N60 FQA7N80 FQA9N90 FQP60N06 FQP70N08 FQP40N10	IRF640 STD1NK60-1 STF2Hnk60Z STP4NK60ZFP STP8NK80ZFP STP9NK60ZFP STW8NK80Z STW9NK90Z STP60NF06 STP75NF75 STP40NF10	----- ----- 2SK3767 2SK3567/2SK3760 2SK2746 2SK2996/2SK2843 2SK2606 2SK2611 ----- ----- -----

Quality Certification Award



ISO-9002 (Nov.1996)



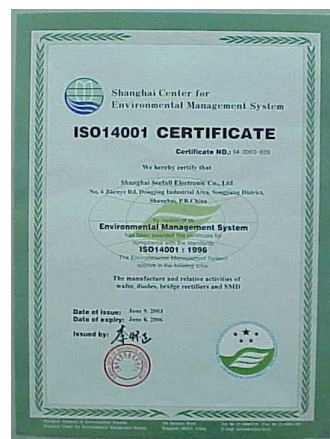
QS-9000(3rd) (Sep.1998)



ISO-14000 (Feb.2000)



QS-9000 upgrade (Nov.2001)



ISO-14000 upgrade (Mar.2003)



TS16949 upgrade (Aug.2004)

**Thank you very
much!!!**