



# SPN3458

## N-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPN3458 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

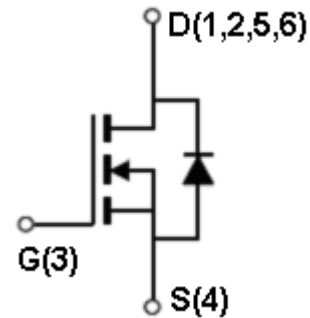
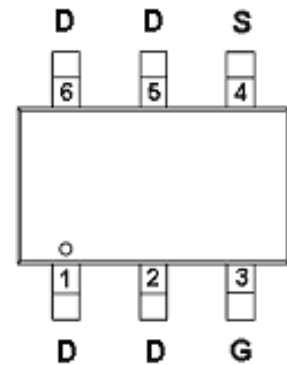
### FEATURES

- ◆ 60V/5.0A,  $R_{DS(ON)} = 115\Omega @ V_{GS} = 10V$
- ◆ 60V/4.5A,  $R_{DS(ON)} = 125\Omega @ V_{GS} = 4.5V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-6P package design

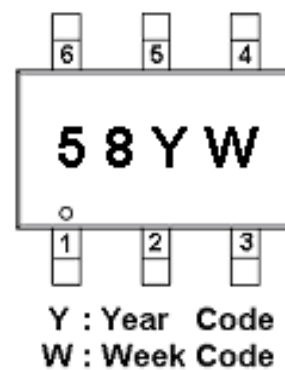
### APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

### PIN CONFIGURATION( SOT-23- 6P )



### PART MARKING





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### PIN DESCRIPTION

Pin	Symbol	Description
1	D	Drain
2	D	Drain
3	G	Gate
4	S	Source
5	D	Drain
6	D	Drain

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPN3458S26RGB	SOT-23-6P	58YW

- ※ Week Code : A ~ Z ( 1 ~ 26 ) ; a ~ z ( 27 ~ 52 )
- ※ SPN3458S26RGB : Tape Reel ; Pb – Free ; Halogen – Free

### ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	60	V
Gate –Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	TA=25°C	5.0
		TA=70°C	4.0
Pulsed Drain Current	I <sub>DM</sub>	10	A
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	2.0	A
Power Dissipation	P <sub>D</sub>	TA=25°C	2.0
		TA=70°C	1.3
Operating Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	90	°C/W



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### ELECTRICAL CHARACTERISTICS

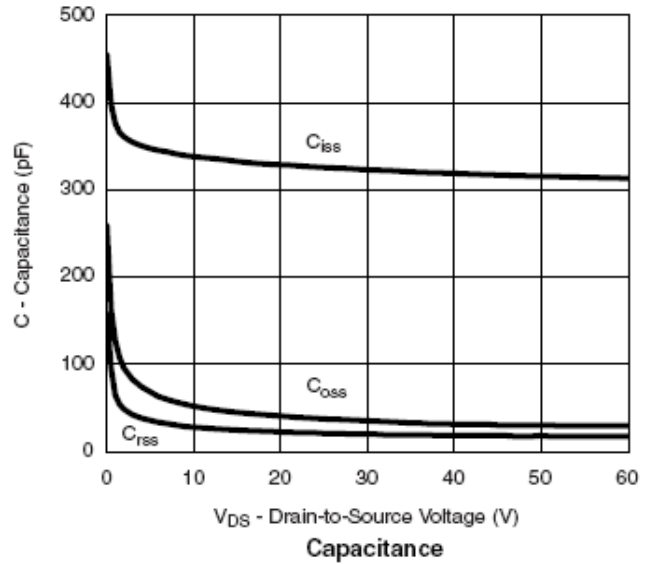
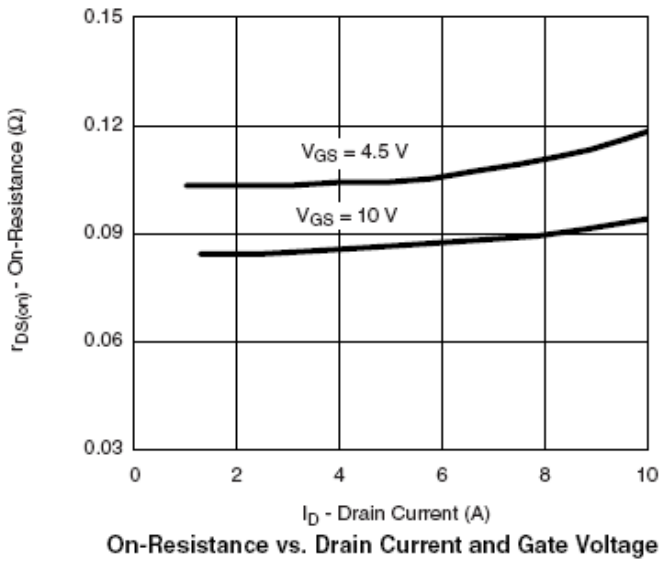
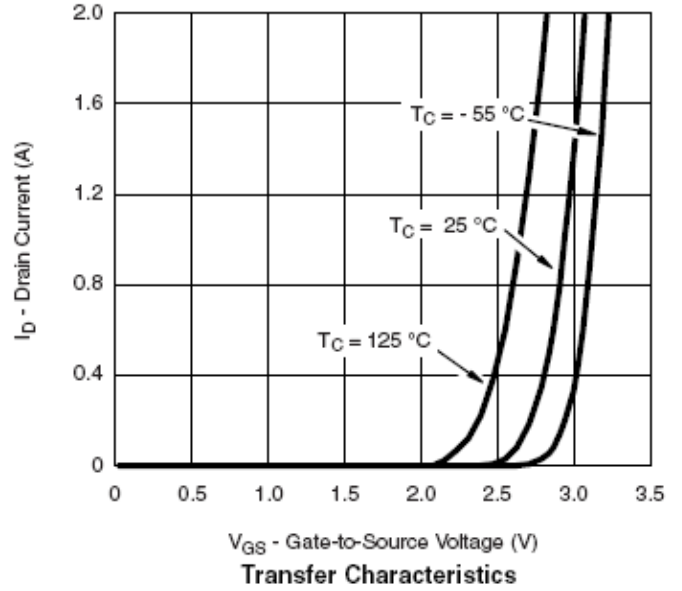
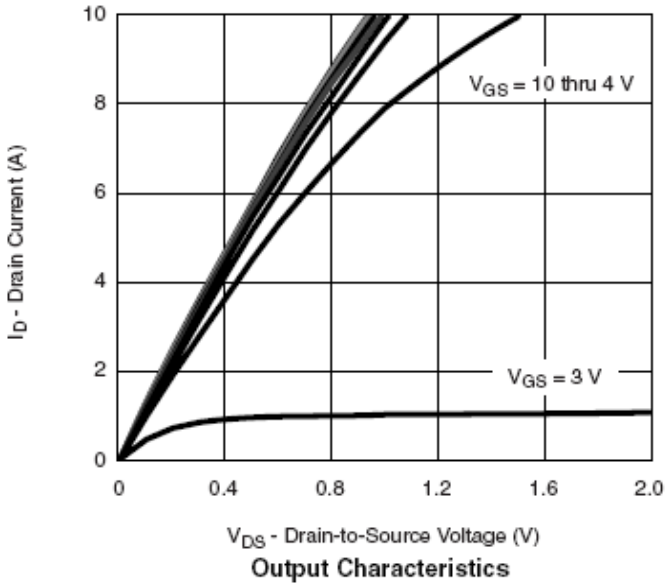
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	60			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.5		1.5	
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0.0V			1	uA
		V <sub>DS</sub> =60V, V <sub>GS</sub> =0.0V T <sub>J</sub> =55°C			10	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 4.5V, V <sub>GS</sub> =4.5V	10			A
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> =5.0A		0.106	0.115	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> =4.5A		0.118	0.125	
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =4.0A		12		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =2.5A, V <sub>GS</sub> =0V		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =4.5V I <sub>D</sub> =4.0A		4.0	6	nC
Gate-Source Charge	Q <sub>gs</sub>			1.2		
Gate-Drain Charge	Q <sub>gd</sub>			1.0		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V f=1MHz		320		pF
Output Capacitance	C <sub>oss</sub>			42		
Reverse Transfer Capacitance	C <sub>rss</sub>			20		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, R <sub>L</sub> =12Ω I <sub>D</sub> =2.5A, V <sub>GEN</sub> =10V R <sub>G</sub> =6Ω		6	10	ns
	t <sub>r</sub>			12	20	
Turn-Off Time	t <sub>d(off)</sub>			18	30	
	t <sub>f</sub>			10	15	



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## TYPICAL CHARACTERISTICS

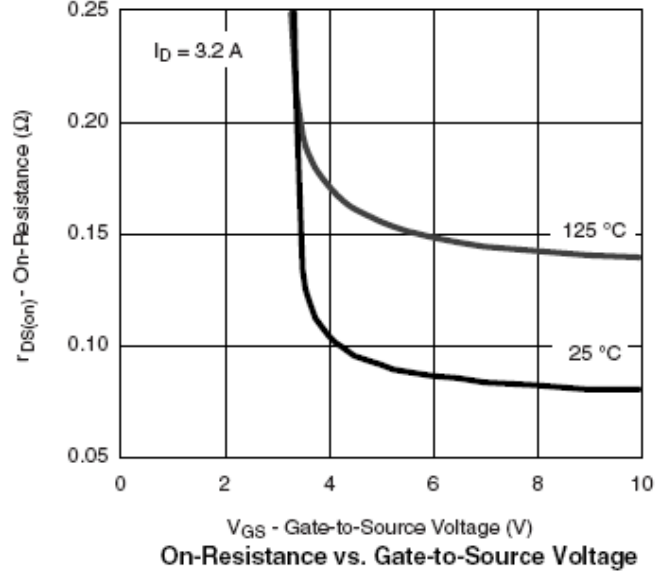
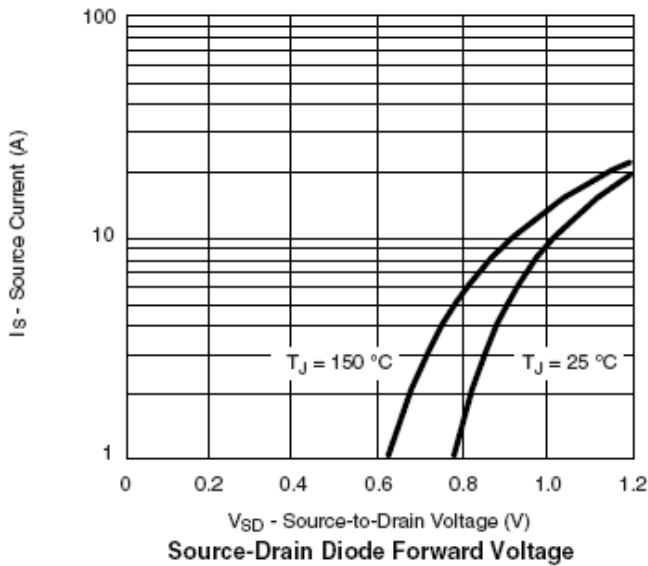
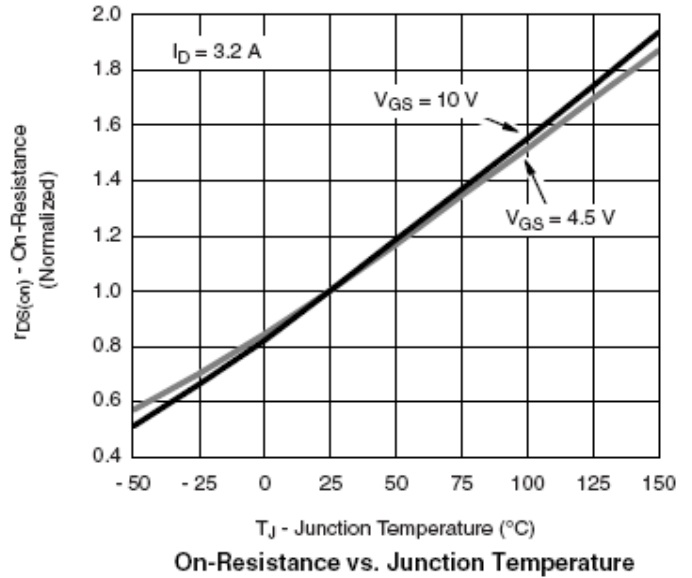
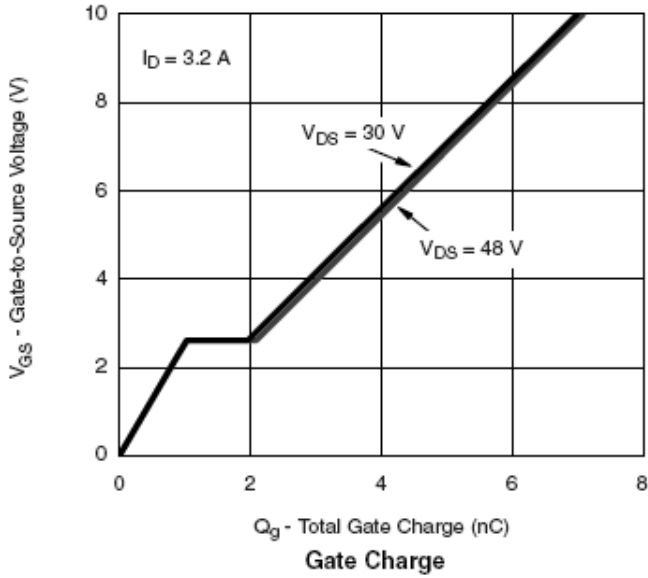




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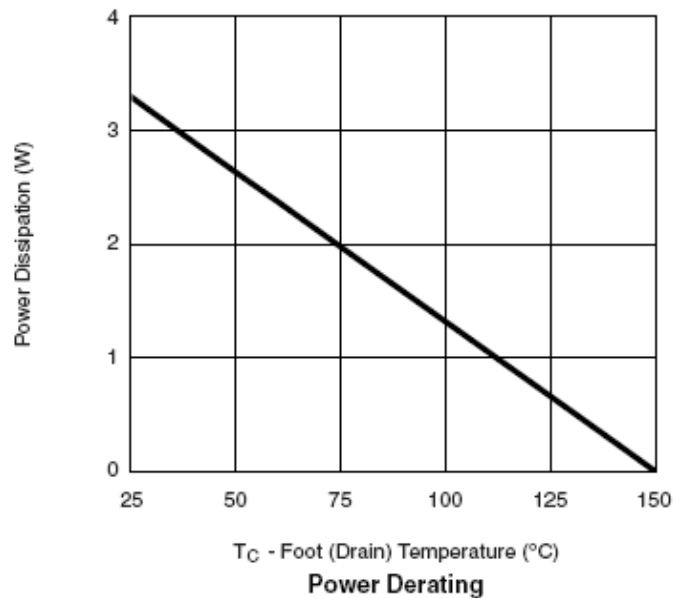
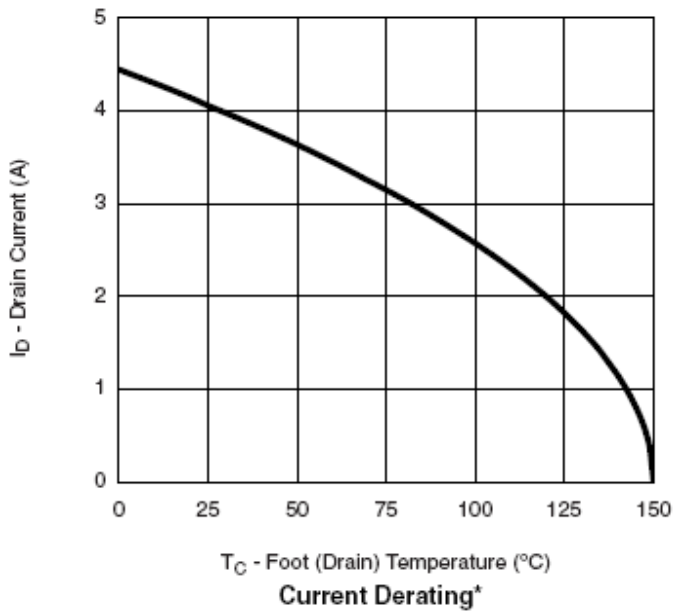
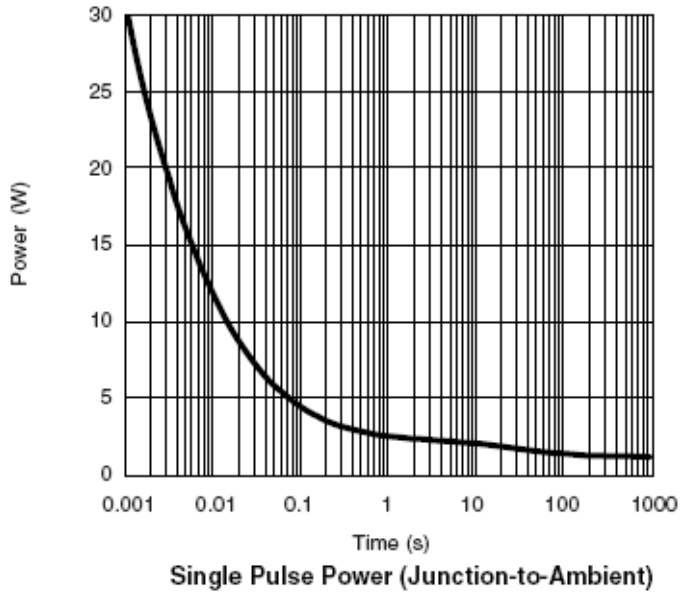
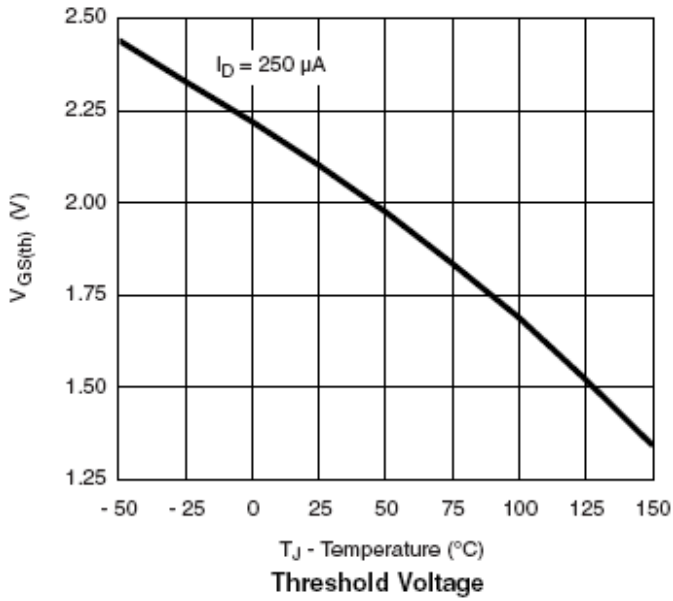




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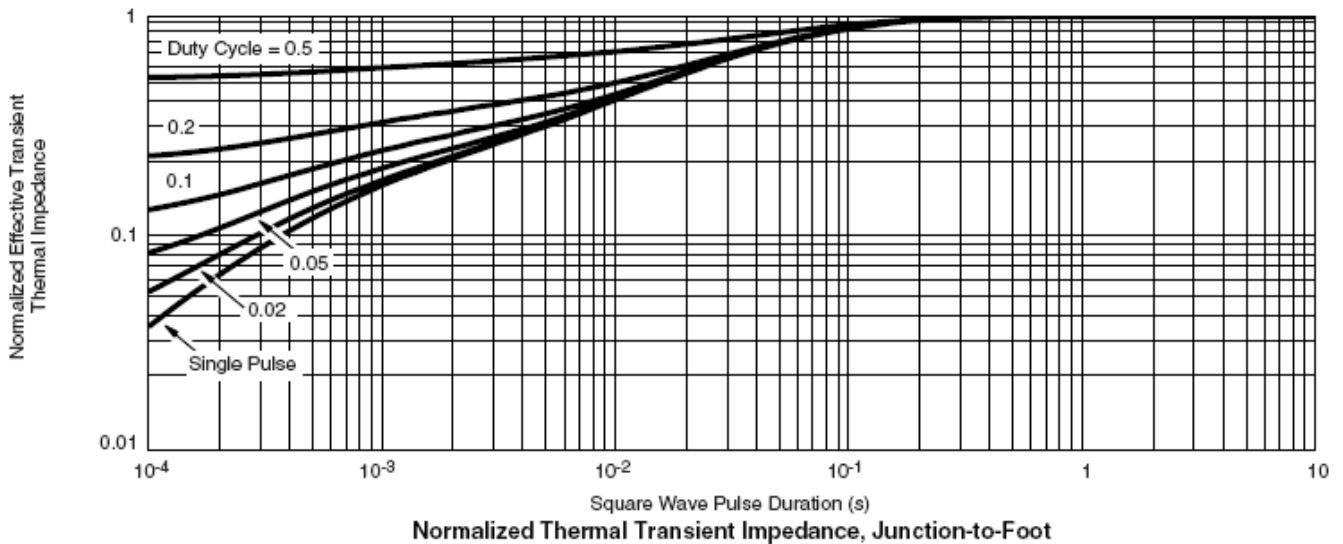
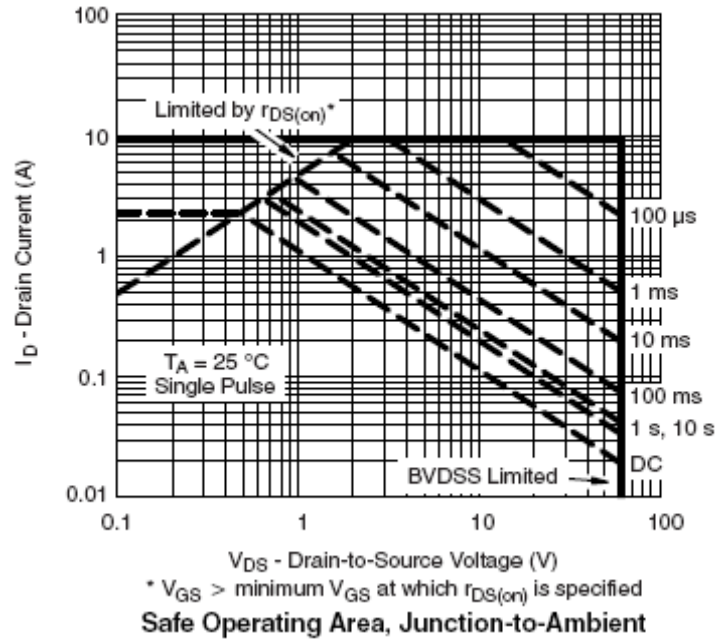




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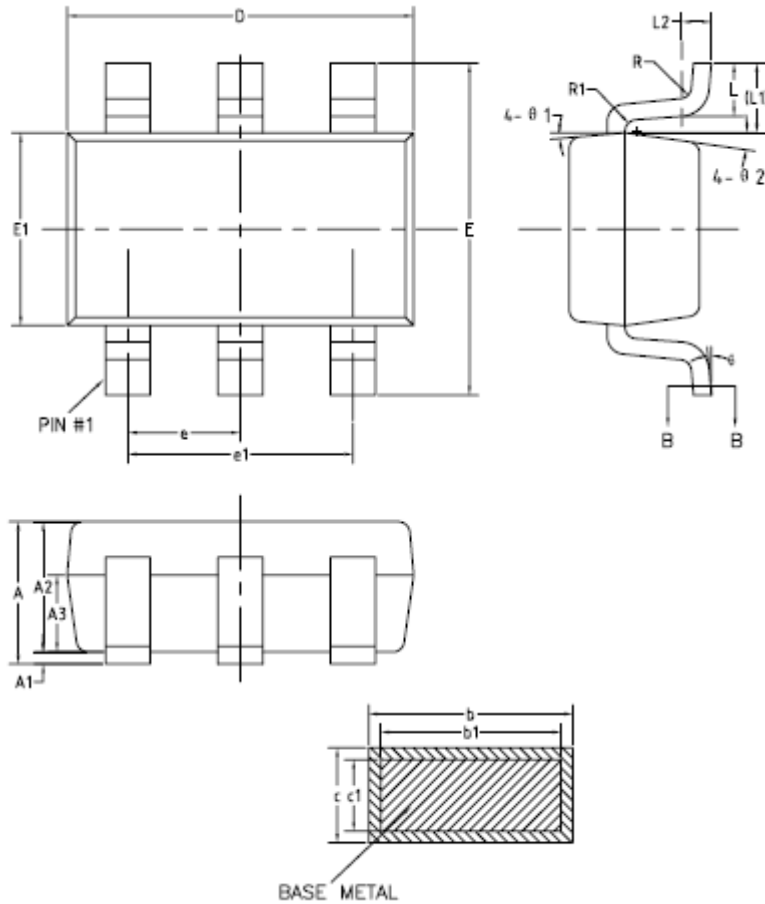




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### SOT-23- 6P PACKAGE OUTLINE



COMMON DIMENSIONS  
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.45
A1	0	—	0.15
A2	0.90	1.10	1.30
A3	0.60	0.65	0.70
b	0.39	—	0.49
b1	0.38	0.40	0.45
c	0.12	—	0.19
c1	0.11	0.13	0.15
D	2.85	2.95	3.05
E	2.60	2.80	3.00
E1	1.55	1.65	1.75
e	0.85	0.95	1.05
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.05	—	—
R1	0.05	—	0.20
θ	0°	—	8°
θ 1	8°	10°	12°
θ 2	8°	10°	12°





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