



SPN3446

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN3446 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.

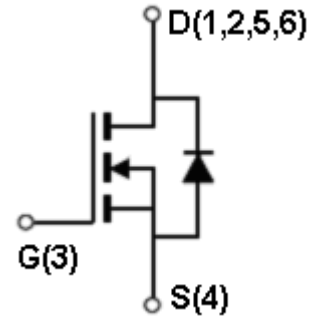
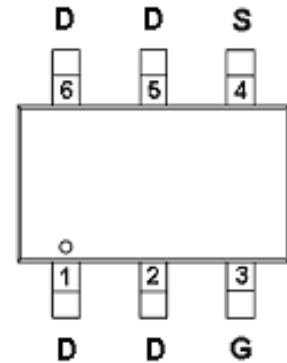
FEATURES

- ◆ 20V/6.0A, $R_{DS(ON)} = 33m\Omega @ V_{GS} = 4.5V$
- ◆ 20V/5.0A, $R_{DS(ON)} = 38m\Omega @ V_{GS} = 2.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-6P package design

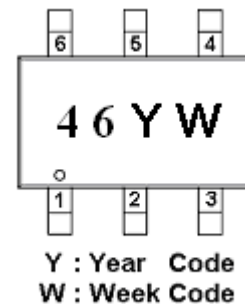
APPLICATIONS

- 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
SPN3446S26RGB	SOT-23-6P	46YW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)

※ SPN3446S26RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	20	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	TA=25°C	6.8
		TA=70°C	4.8
Pulsed Drain Current	I _{DM}	30	A
Continuous Source Current(Diode Conduction)	I _S	1.6	A
Power Dissipation	P _D	TA=25°C	2.8
		TA=70°C	1.8
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	105	°C/W



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ELECTRICAL CHARACTERISTICS

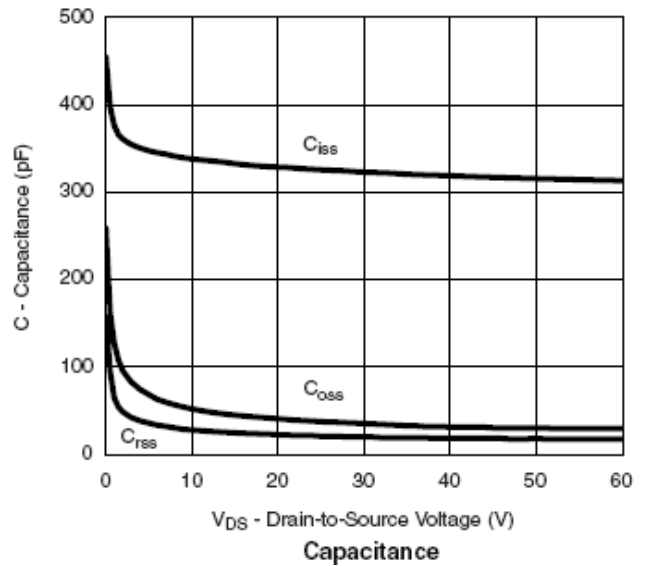
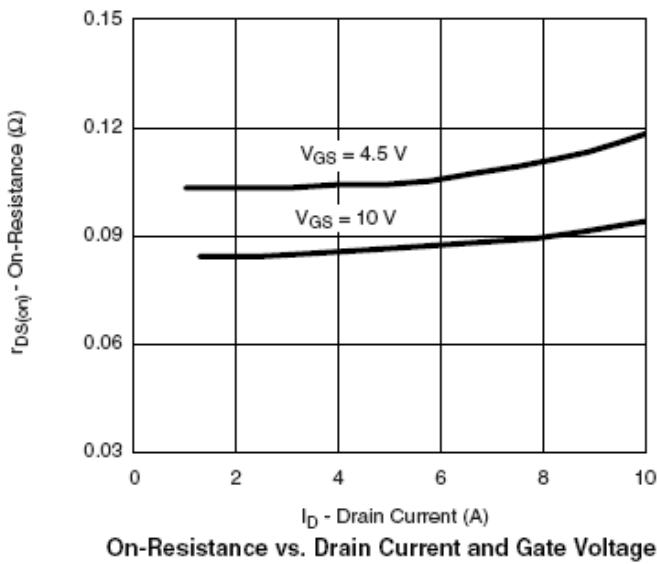
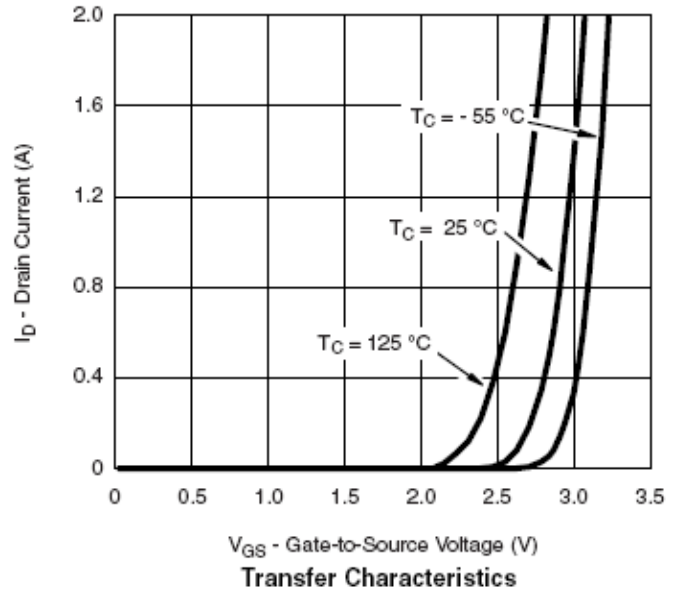
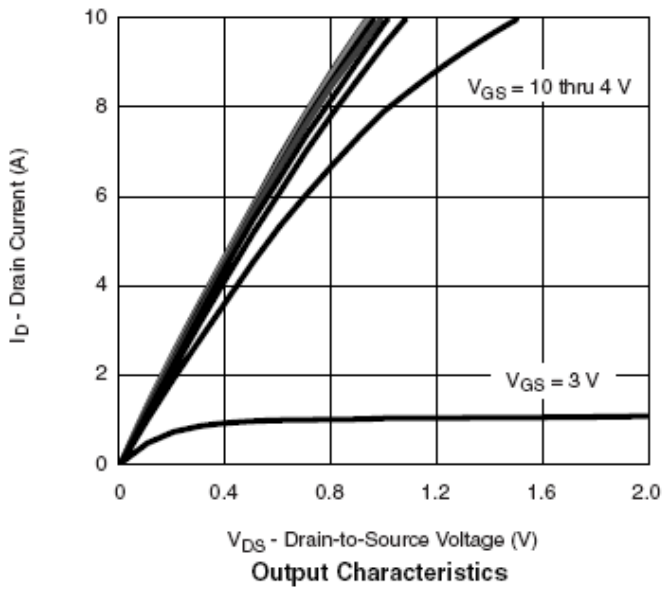
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.5		1.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	uA
		V _{DS} =20V, V _{GS} =0V T _J =55°C			5	
On-State Drain Current	I _{D(on)}	V _{DS} ≤5V, V _{GS} =4.5V	6			A
Drain-Source On-Resistance	R _{DSS(on)}	V _{GS} =4.5V, I _D =6.0A		0.028	0.033	Ω
		V _{GS} =2.5V, I _D =5.0A		0.032	0.038	
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =3.6A		10		S
Diode Forward Voltage	V _{SD}	I _S =1.7A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D =6.0A		2		nC
Gate-Source Charge	Q _{gs}			2.5		
Gate-Drain Charge	Q _{gd}			2.1		
Input Capacitance	C _{iss}	V _{DS} =8V, V _{GS} =0V f=1MHz		575		pF
Output Capacitance	C _{oss}			84		
Reverse Transfer Capacitance	C _{rss}			22		
Turn-On Time	t _{d(on)}	V _{DD} =10V, R _L =6Ω I _D =1.0A, V _{GEN} =4.5V R _G =6Ω		10	14	ns
	t _r			16	20	
Turn-Off Time	t _{d(off)}			35	40	
	t _f			3	10	



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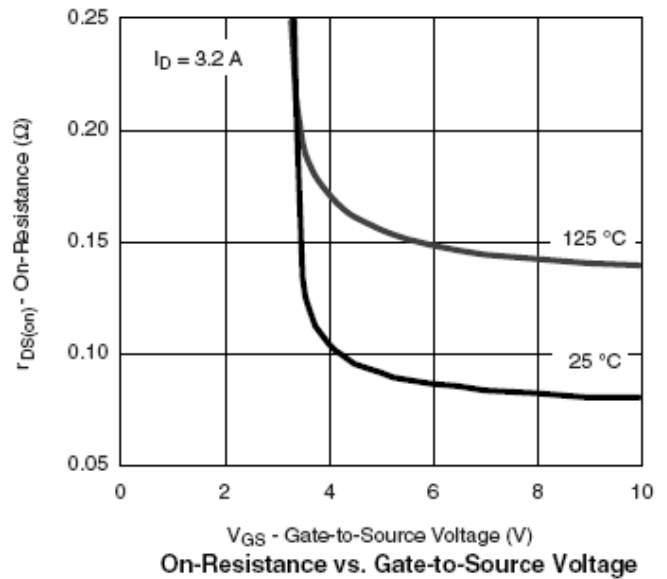
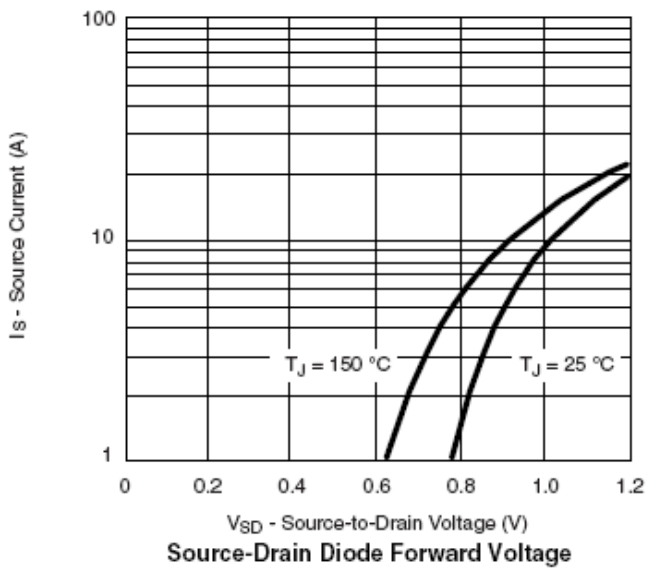
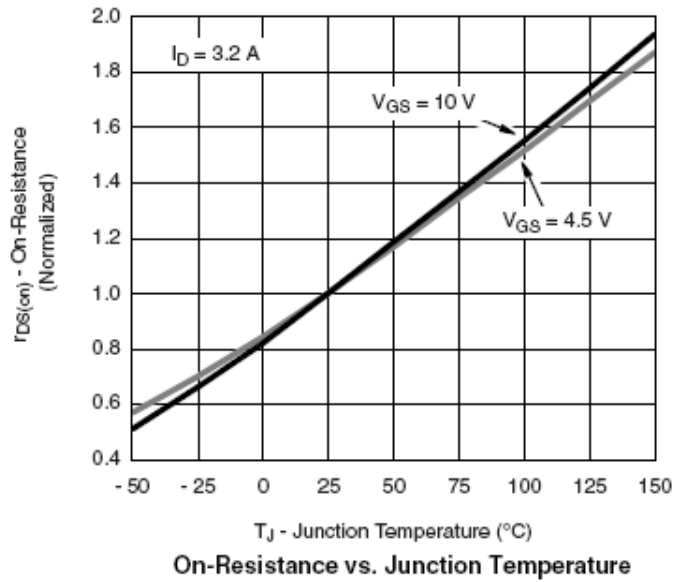
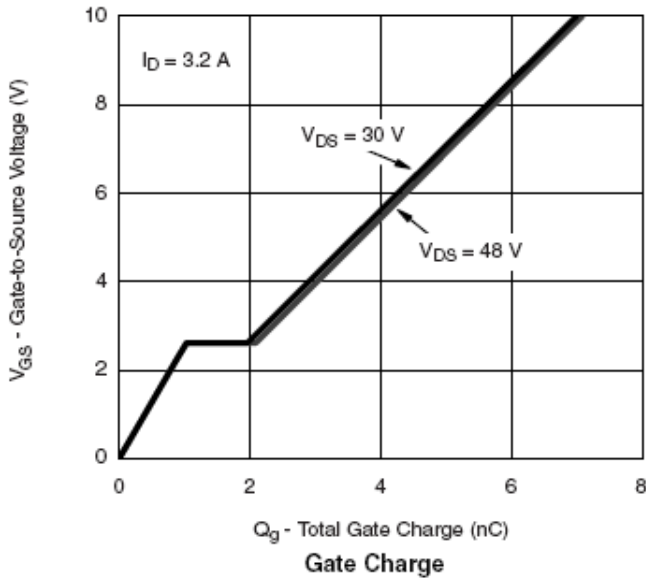
TYPICAL CHARACTERISTICS





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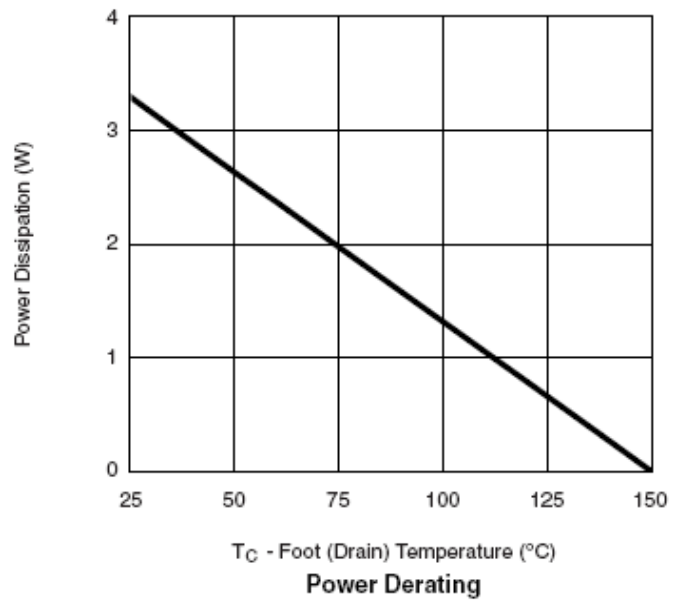
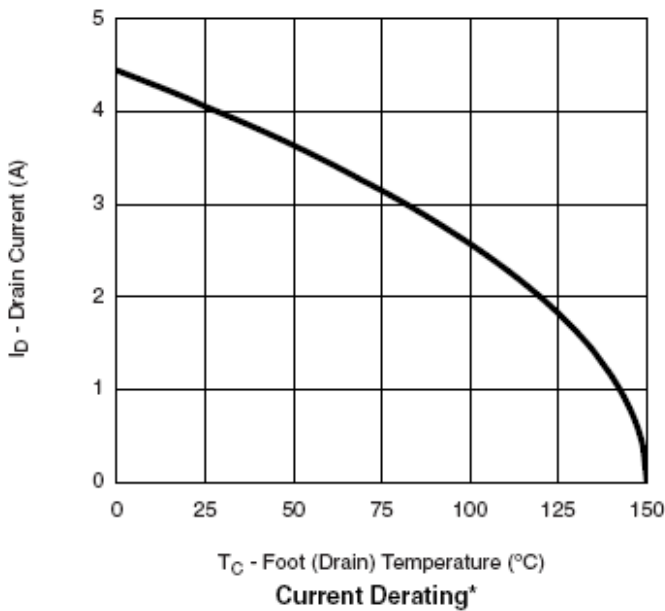
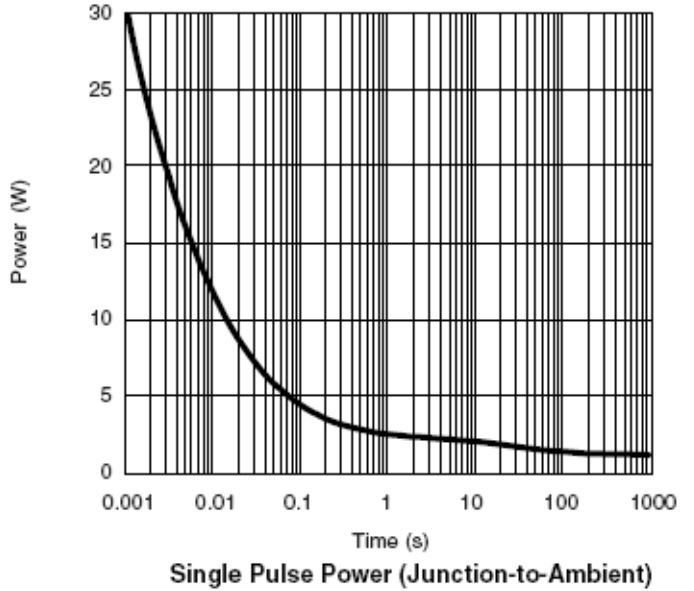
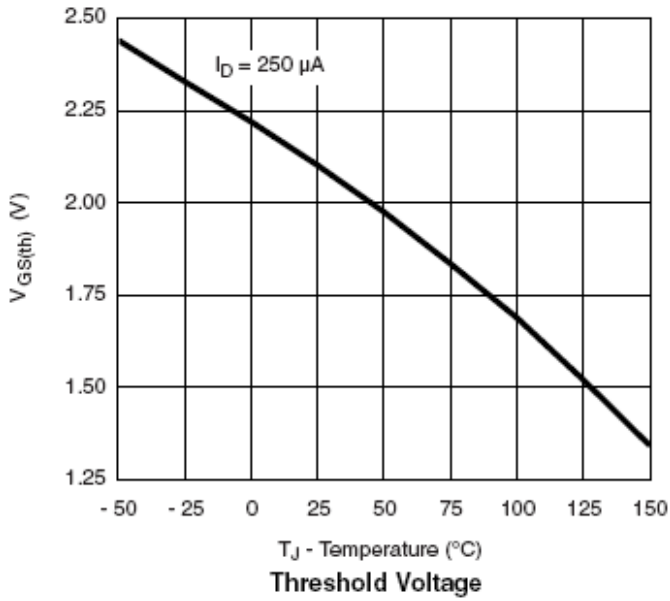
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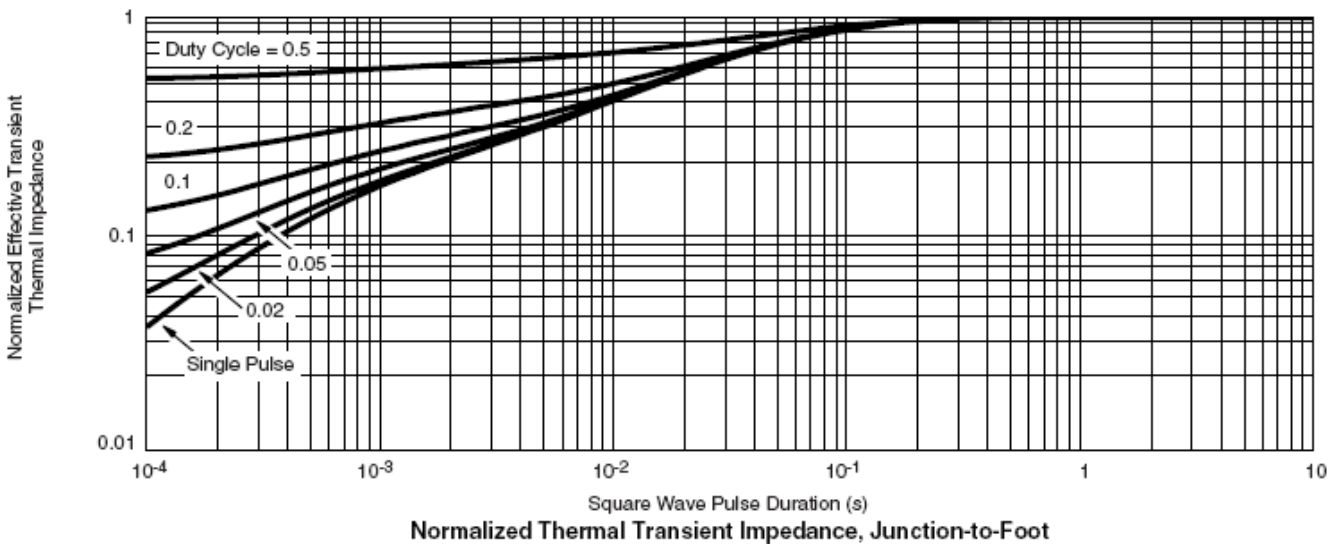
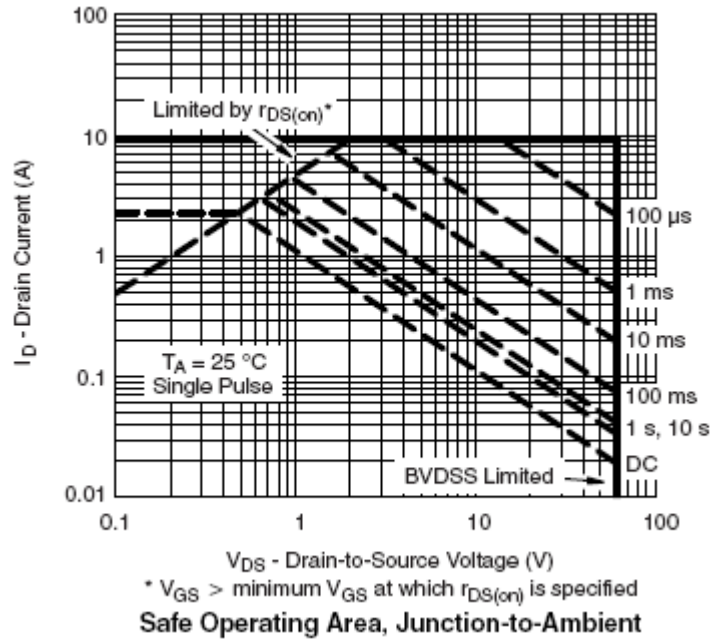




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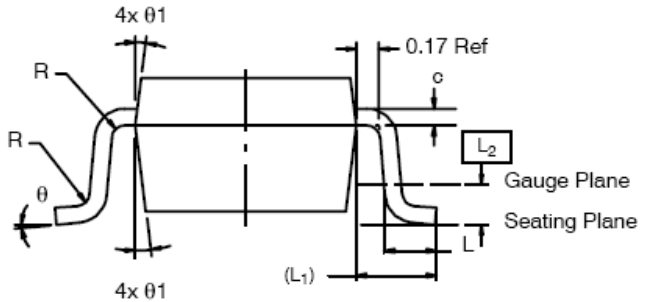
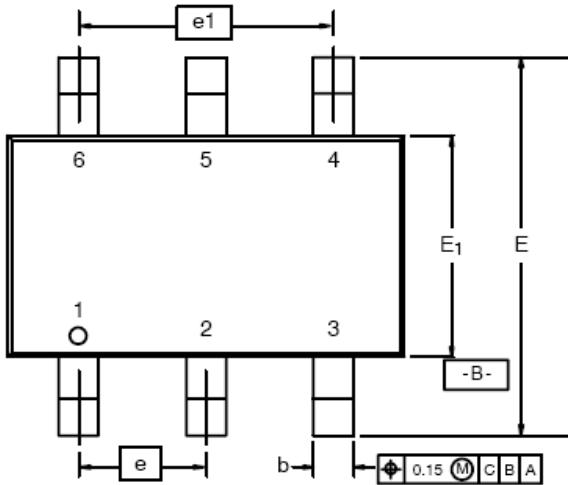




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SOT-23- 6P PACKAGE OUTLINE



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.91	-	1.10	0.036	-	0.043
A₁	0.01	-	0.10	0.0004	-	0.004
A₂	0.90	-	1.00	0.035	0.038	0.039
b	0.30	0.32	0.45	0.012	0.013	0.018
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.95	3.05	3.10	0.116	0.120	0.122
E	2.70	2.65	2.98	0.106	0.112	0.117
E₁	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
e₁	1.90	2.00	2.10	0.075	0.080	0.085
L	0.35	-	0.50	0.014	-	0.020
L₁	0.60 Ref			0.024 Ref		
L₂	0.25 BSC			0.010 BSC		
R	0.10	-	-	0.004	-	-
θ	0°	4°	8°	0°	4°	8°
θ₁	7° Nom			7° Nom		



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