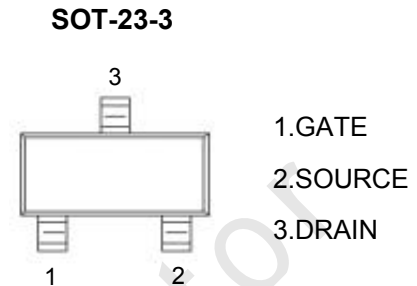


$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	0.024Ω@10V	6.0A
	0.027Ω@4.5V	
	0.035Ω@2.5V	



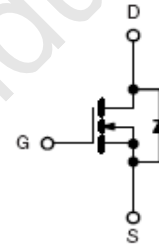
General FEATURE

- TrenchFET Power MOSFET
- Lead free product is acquired
- Surface mount package

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

Equivalent Circuit



Maximum ratings ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	6.0	A
Pulsed Drain Current*1	I_{DM}	20	
Continuous Source-Drain Diode Current	I_S	1.25	
Maximum Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient($t \leq 10s$)	$R_{\theta JA}$	100	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{stg}	-55 ~+150	

Note :

*1. Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$

MOSFET ELECTRICAL CHARACTERISTICS
Ta = 25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.8	1.0	
Gate-source leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			100	nA
Drain-source on-state resistance ^a	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 6A$		0.016	0.024	Ω
		$V_{GS} = 4.5V, I_D = 5A$		0.019	0.027	
		$V_{GS} = 2.5V, I_D = 4A$		0.023	0.035	
Forward transconductance ^a	g_{fs}	$V_{DS} = 5V, I_D = 6A$		25	-	S
Dynamic^b						
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		742		pF
Output capacitance	C_{oss}			66		
Reverse transfer capacitance	C_{rss}			78		
Total gate charge	Q_g	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 6A$		9.0		nC
Gate-source charge	Q_{gs}			1.5		
Gate-drain charge	Q_{gd}			2.6		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 1A$ $V_{GEN} = 4.5V, R_g = 6\Omega$		12.0		ns
Rise time	t_r			23.0		
Turn-off delay time	$t_{d(off)}$			14.0		
Fall time	t_f			9.0		
Drain-source body diode characteristics						
Continuous source-drain diode current	I_S	$T_C = 25^\circ C$			1.25	A
Body diode voltage	V_{SD}	$I_S = 1.0A$		0.7	1.0	V

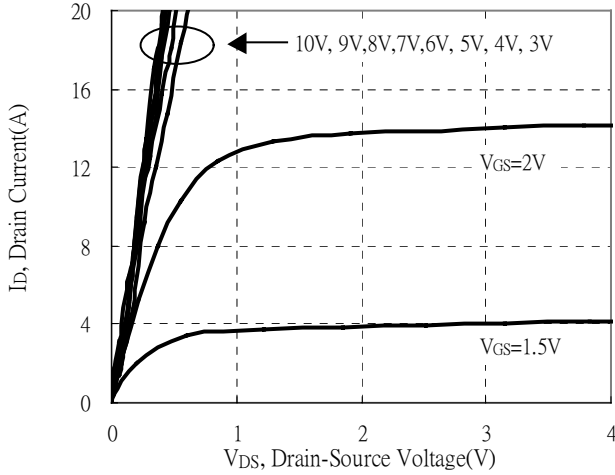
Notes :

 a. Pulse Test : Pulse Width < 300 μ s, Duty Cycle \leq 2%.

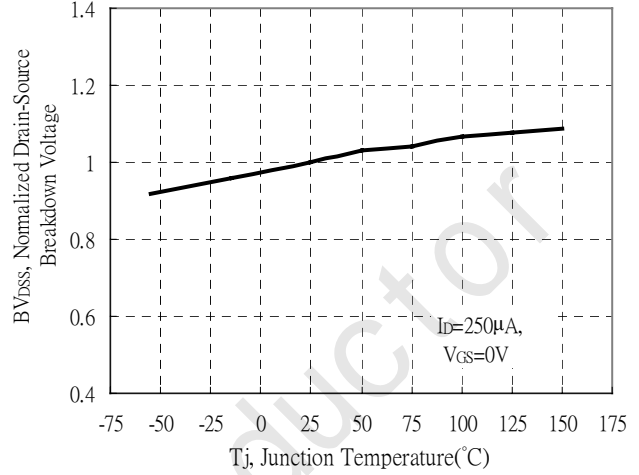
b. Guaranteed by design, not subject to production testing.

Typical Characteristics

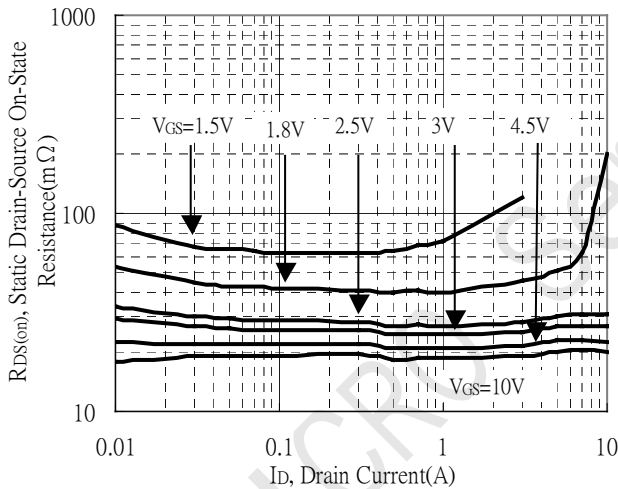
Typical Output Characteristics



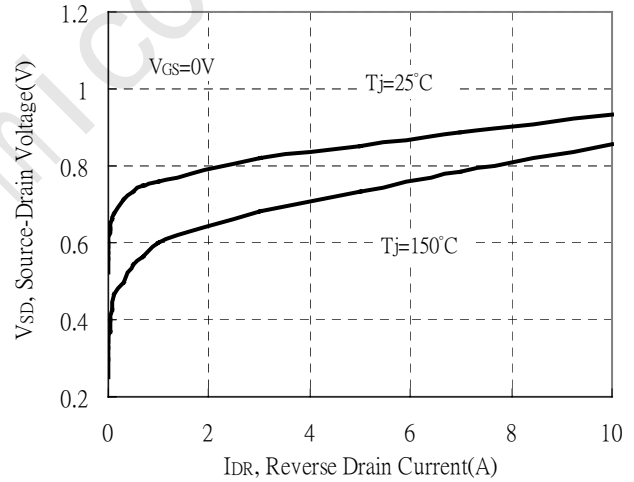
Brekdown Voltage vs Ambient Temperature



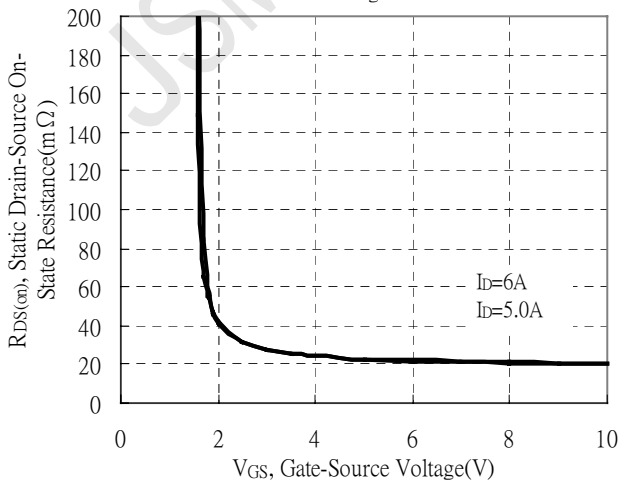
Static Drain-Source On-State resistance vs Drain Current



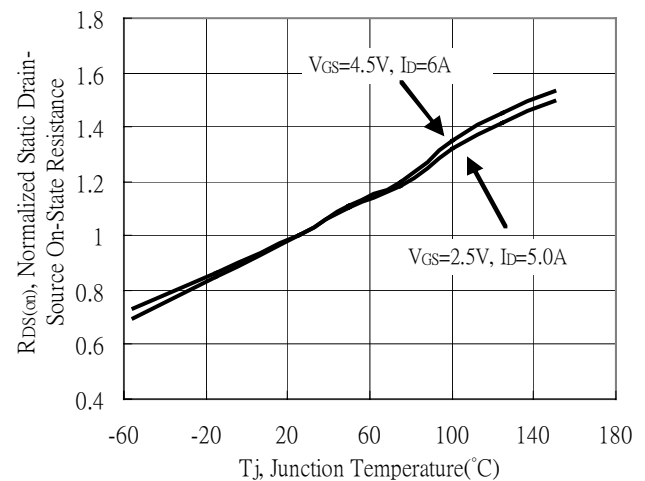
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

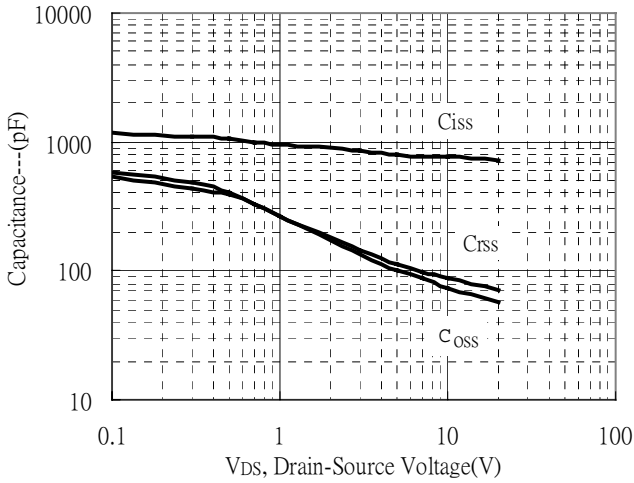


Drain-Source On-State Resistance vs Junction Temperature

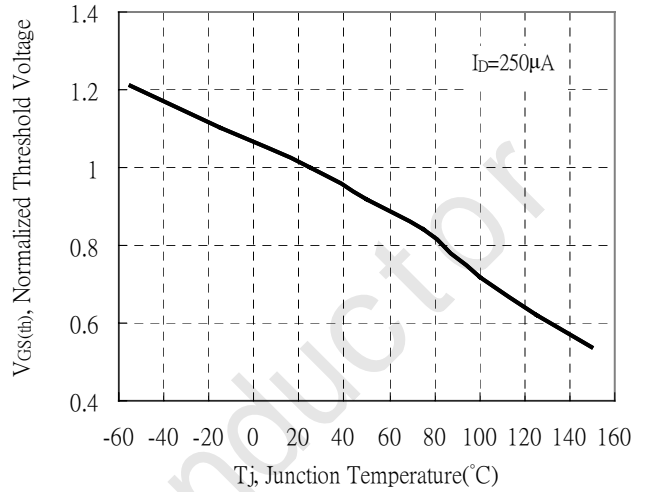


Typical Characteristics(Cont.)

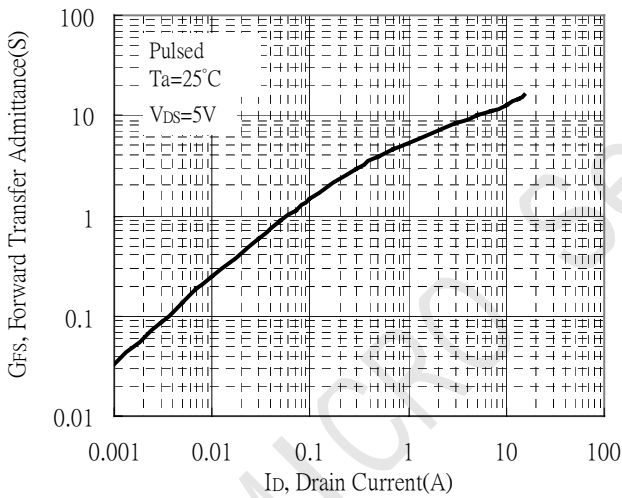
Capacitance vs Drain-to-Source Voltage



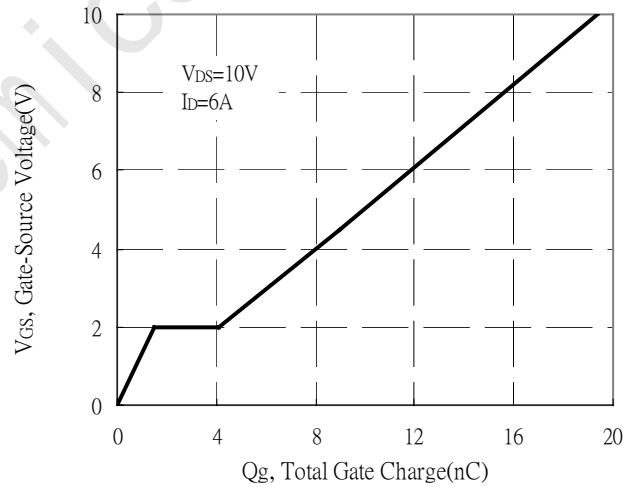
Threshold Voltage vs Junction Temperature



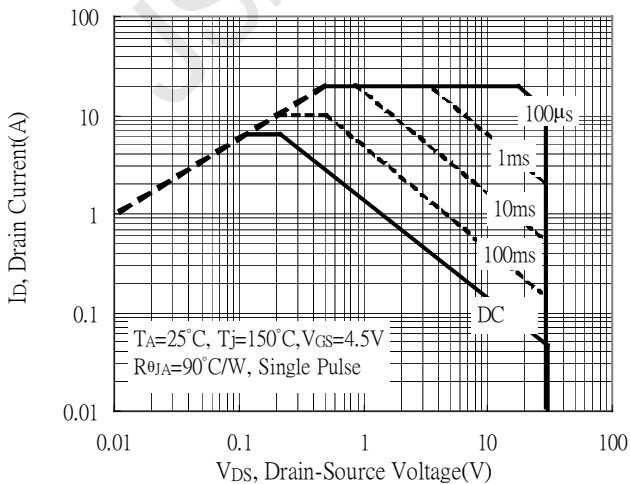
Forward Transfer Admittance vs Drain Current



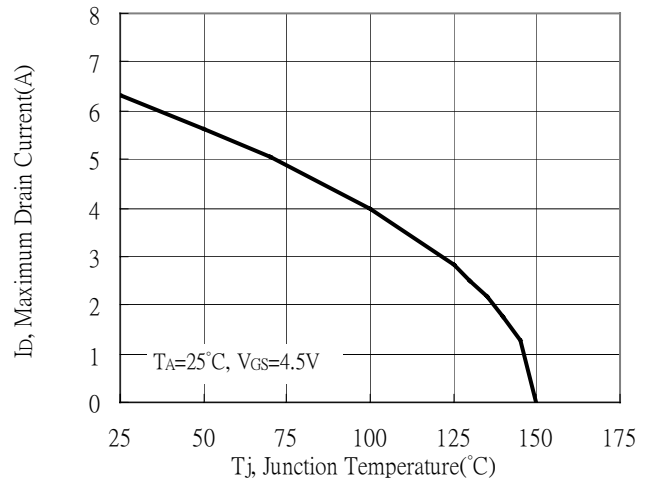
Gate Charge Characteristics



Maximum Safe Operating Area

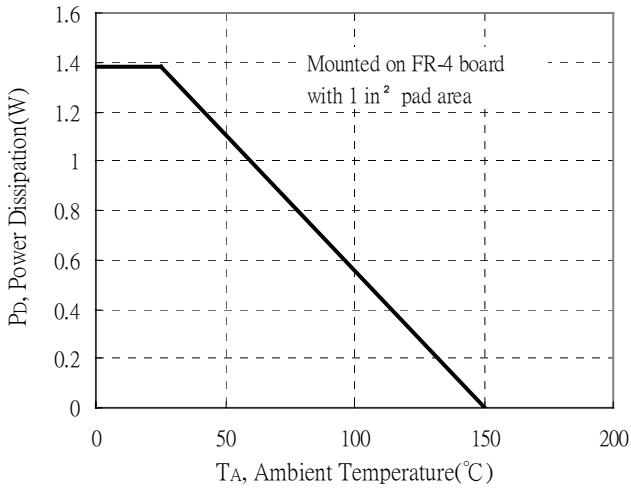
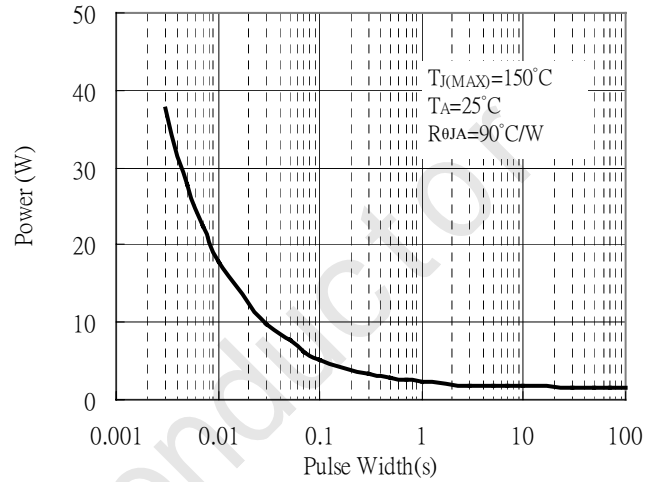


Maximum Drain Current vs Junction Temperature

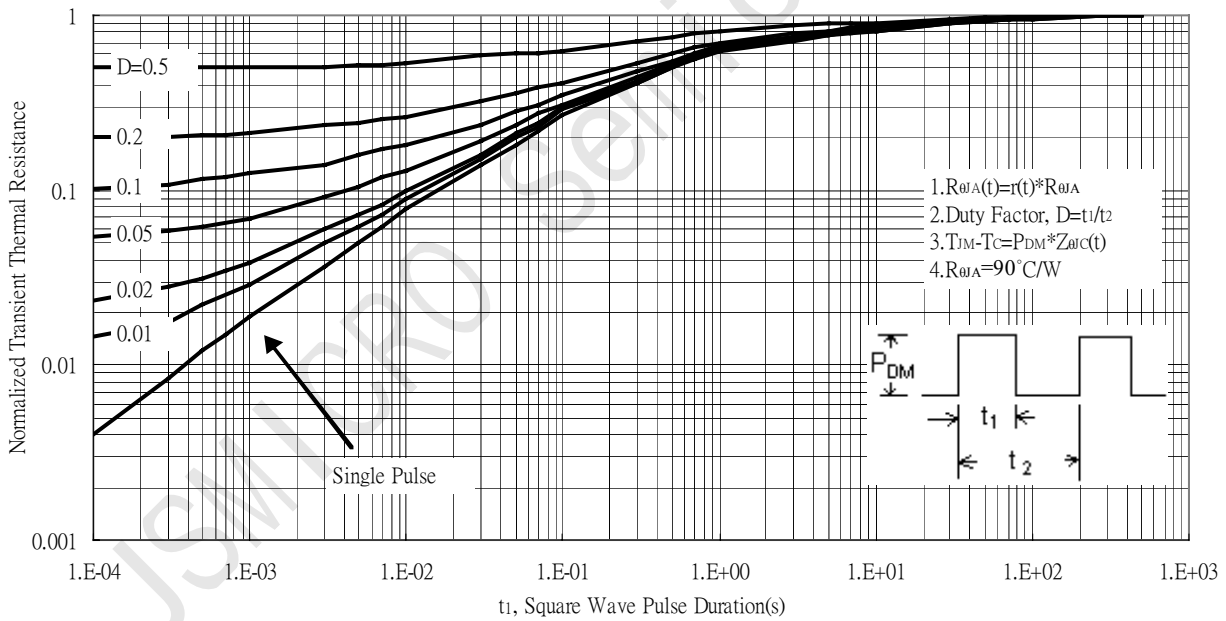


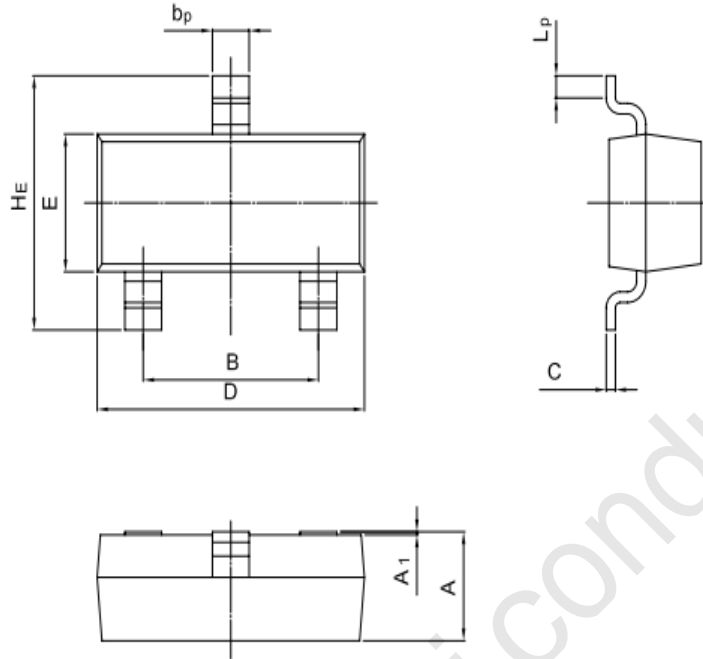
Typical Characteristics(Cont.)

Power Derating Curve

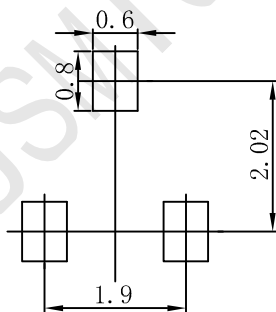

 Single Pulse Power Rating, Junction to Ambient
 (Note on page 1)


Transient Thermal Response Curves



SOT-23 Package Outline Dimensions


UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20

SOT-23 Suggested Pad Layout

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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