

**Features**

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

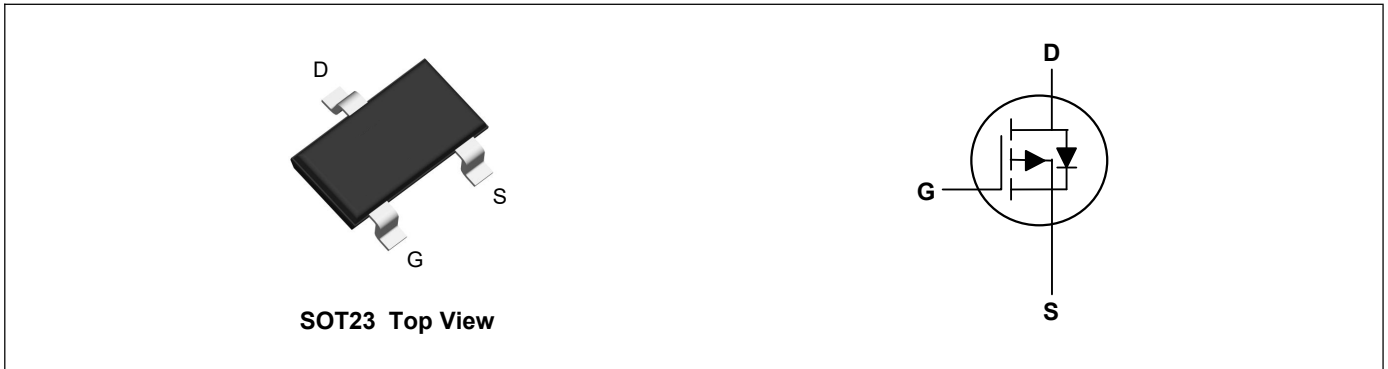
**Product Summary**



$V_{DS}$	-50	V
$I_D$	-130	A
$R_{DS(ON)Typ}$ (at $V_{GS}=-5V$ )	6	$\Omega$

**Applications**

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



**Absolute Maximum Ratings( $T_C=25^\circ C$ , unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	-50	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D@T_C=25^\circ C$	-130	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	-520	A
Total Power Dissipation <sup>4</sup>	$P_D$	225	W
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ C$
Operating Junction Temperature Range	$T_J$	-55 to 150	$^\circ C$

**Thermal Characteristics**

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	---	556	$^\circ C/W$

**Electrical Characteristics (T<sub>J</sub>=25°C, unless otherwise noted)**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-50	---	---	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-5V, I <sub>D</sub> =-0.1A	---	6	10	Ω
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-0.001A	-0.8	---	-2.0	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-50V, V <sub>GS</sub> =0V	---	---	-1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±10	uA
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-40V, V <sub>GS</sub> =-5V, I <sub>D</sub> =-0.5A	---	1.2	---	nC
Gate-Source Charge	Q <sub>gs</sub>		---	0.7	---	
Gate-Drain Charge	Q <sub>gd</sub>		---	1.3	---	
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-5V, R <sub>G</sub> =3.3Ω, I <sub>D</sub> =-0.1A	---	2.5	---	ns
Rise Time	T <sub>r</sub>		---	2	---	
Turn-Off Delay Time	T <sub>d(off)</sub>		---	7.3	---	
Fall Time	T <sub>f</sub>		---	3	---	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-5V, V <sub>GS</sub> =0V, f=1MHz	---	25	---	pF
Output Capacitance	C <sub>oss</sub>		---	7	---	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	2	---	

**Drain-Source Diode Characteristics**

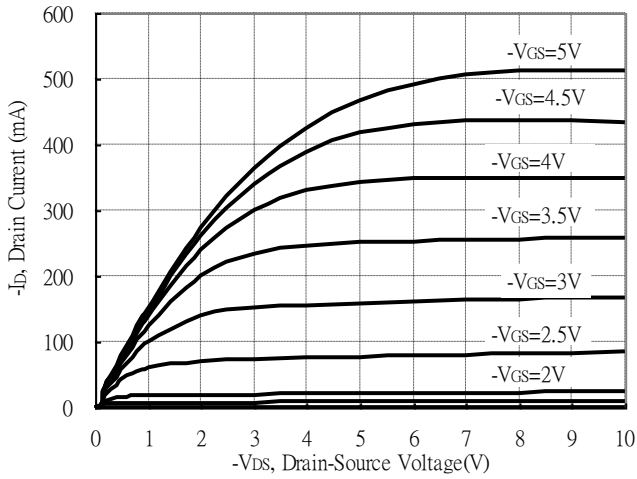
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage <sup>2</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-0.13A	---	---	-1.2	V

**Note:**

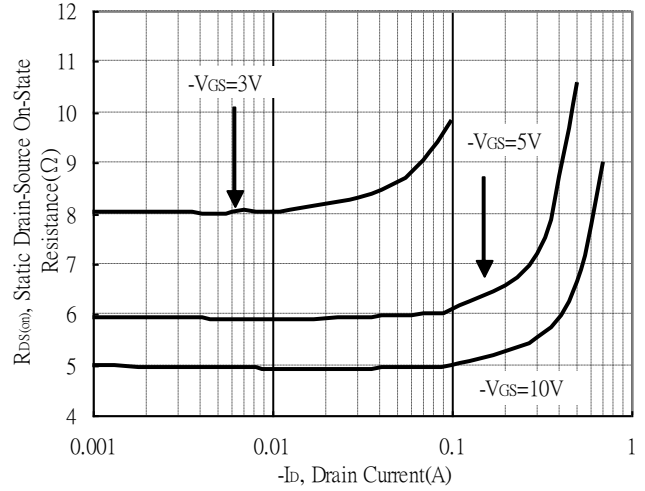
- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%

**Typical Characteristics**

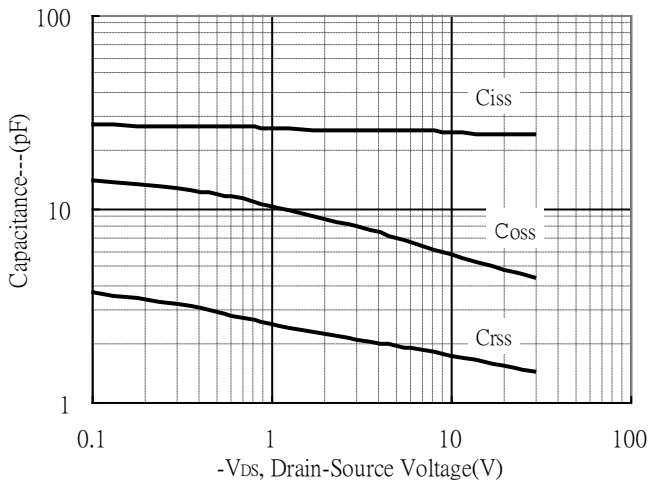
Typical Output Characteristics



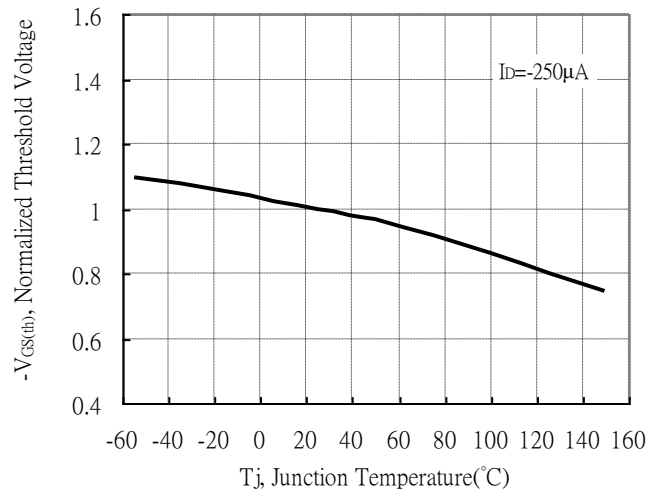
Static Drain-Source On-State resistance vs Drain Current



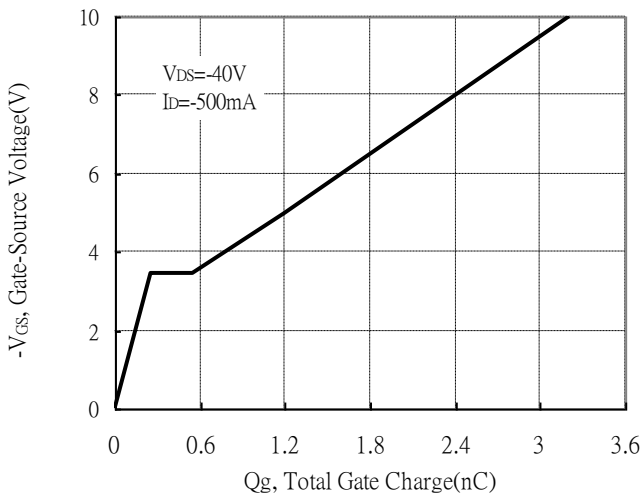
Capacitance vs Drain-to-Source Voltage



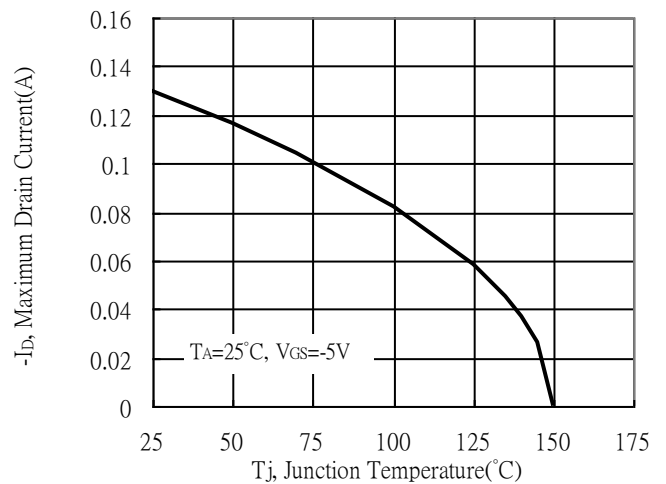
Threshold Voltage vs Junction Temperature



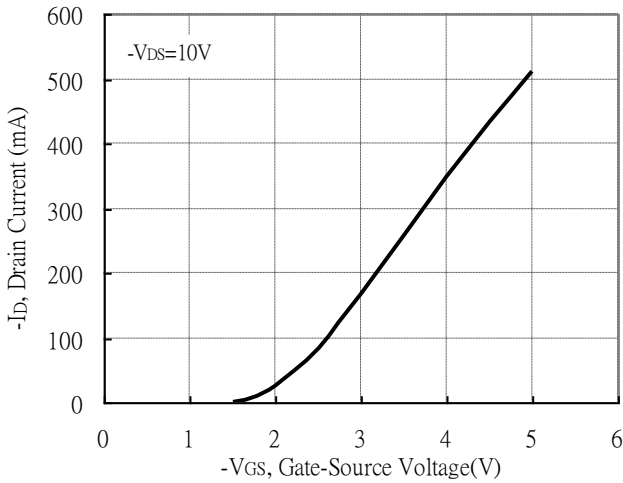
Gate Charge Characteristics



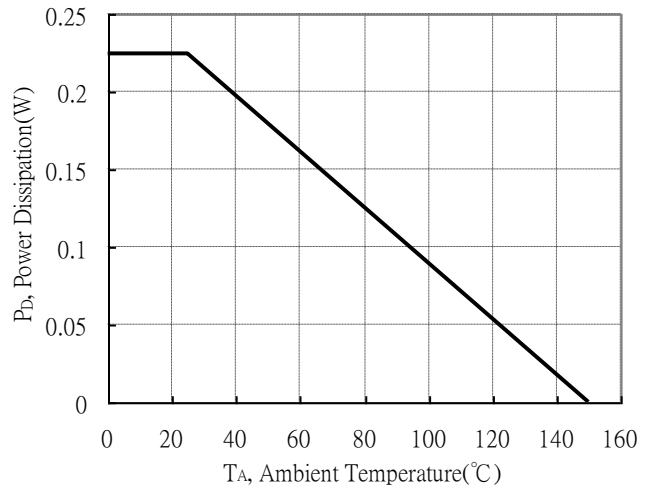
Maximum Drain Current vs Junction Temperature



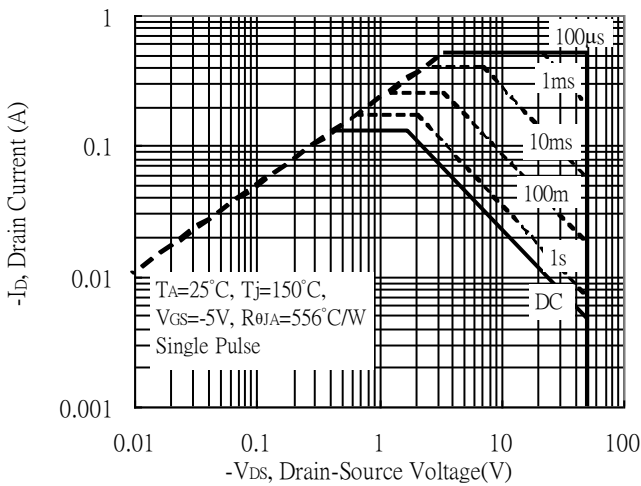
Typical Transfer Characteristics



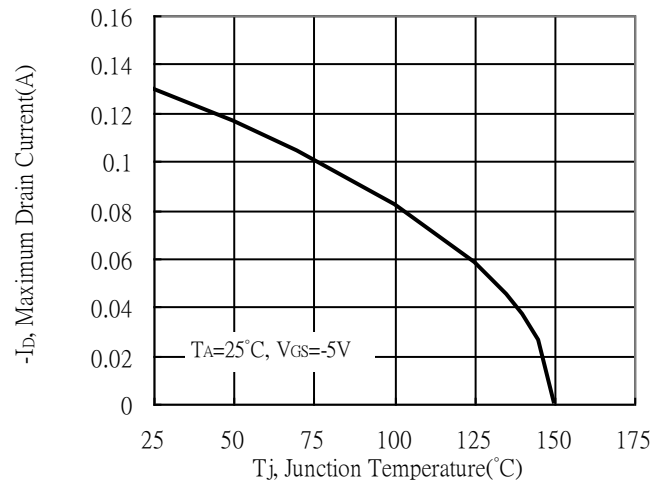
Power Derating Curve



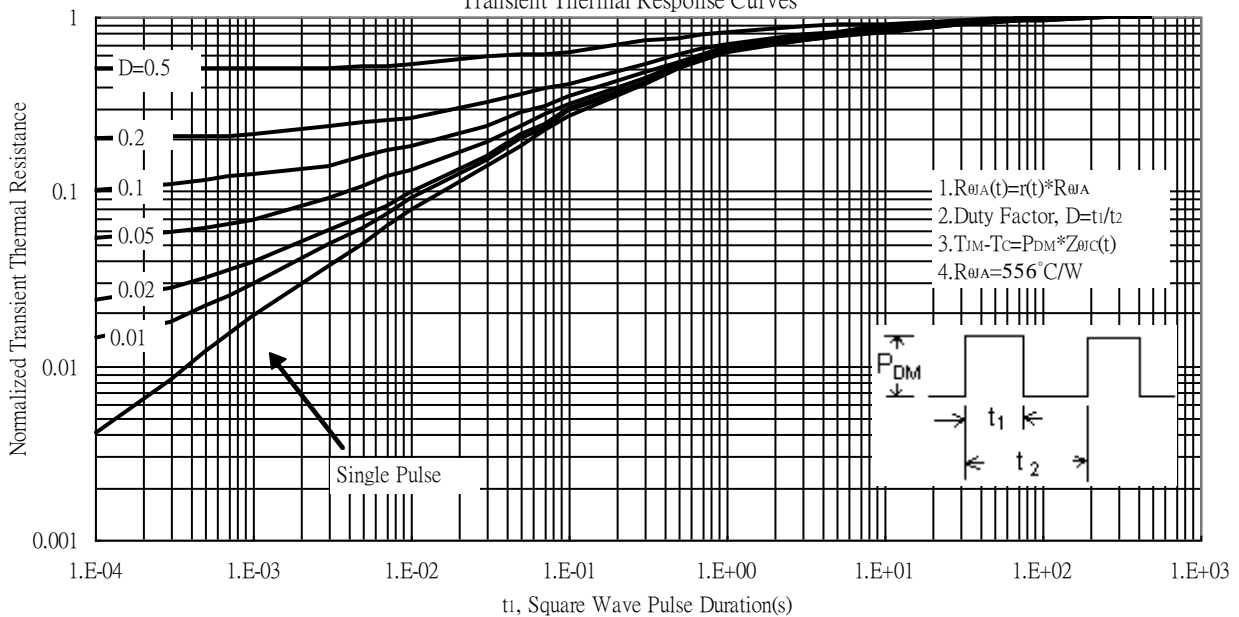
Maximum Safe Operating Area



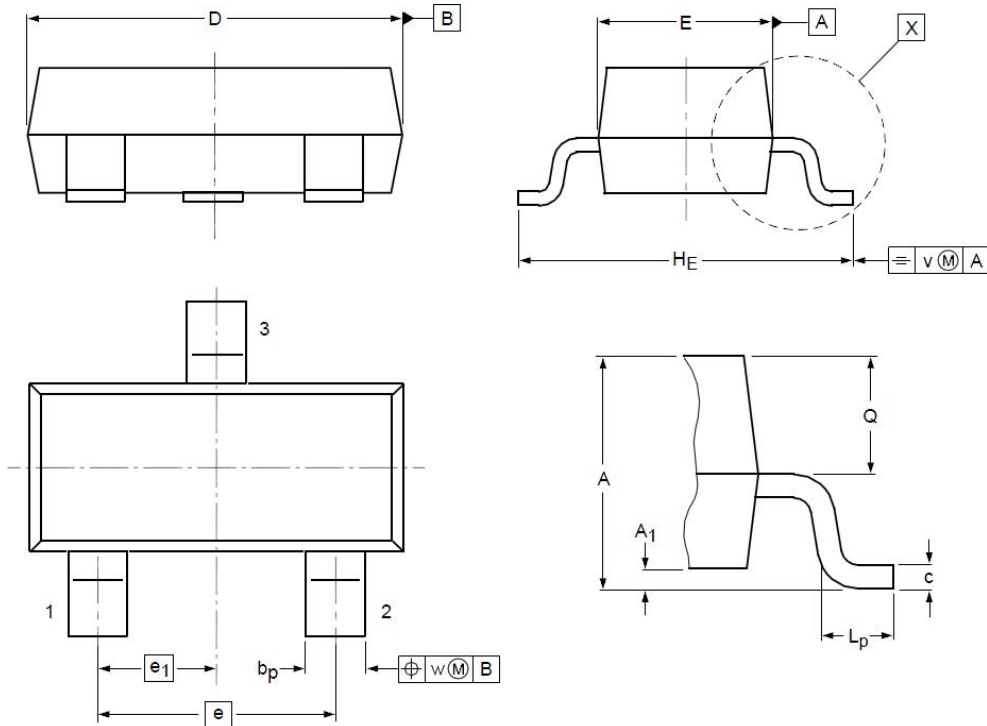
Maximum Drain Current vs Junction Temperature



Transient Thermal Response Curves



**SOT23 Package Outline Dimensions**



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
<b>A</b>	0.90	1.05	1.20	<b>e<sub>1</sub></b>	--	0.95	--
<b>A<sub>1</sub></b>	0.01	0.05	0.10	<b>H<sub>E</sub></b>	2.10	2.40	2.50
<b>b<sub>p</sub></b>	0.38	0.42	0.48	<b>L<sub>p</sub></b>	0.40	0.50	0.60
<b>c</b>	0.09	0.13	0.15	<b>Q</b>	0.45	0.49	0.55
<b>D</b>	2.80	2.92	3.00	<b>V</b>	--	0.20	--
<b>E</b>	1.20	1.33	1.40	<b>W</b>	--	0.10	--
<b>e</b>	--	1.90	--				