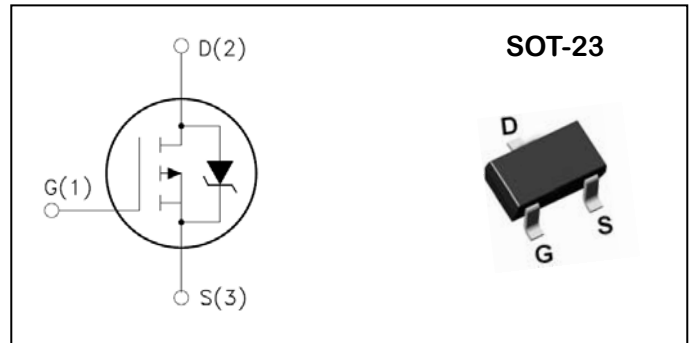


## P-Channel Enhancement Mode Field Effect Transistor

### PRODUCT SUMMARY

$V_{DSS}$	$I_D$	$R_{DS(ON)}$ (m $\Omega$ )
-30V	-5.6A	50m $\Omega$



### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise specified )

Symbol	Parameter		Ratings	Unit
<b>Common Ratings</b>				
$V_{DSS}$	Drain-Source Voltage		-30	V
$V_{GSS}$	Gate-Source Voltage		$\pm 20$	
$T_J$	Maximum Junction Temperature		150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range		-55 to 150	$^\circ\text{C}$
$I_S$	Diode Continuous Forward Current (3)	$T_C=25^\circ\text{C}$	-1.5	A
<b>Mounted on Large Heat Sink</b>				
$I_{DM}$	300 $\mu\text{s}$ Pulse Drain Current Tested(1)	$T_C=25^\circ\text{C}$	-25	A
$I_D$	Continuous Drain Current	$T_C=25^\circ\text{C}$	-10	A
		$T_C=125^\circ\text{C}$	-5.6	A
$P_D$	Maximum Power Dissipation (3)		1.5	W

1. Pulse width limited by maximum junction temperature.

### Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{thJA}$	Thermal resistance junction-ambient max (3)	90	$^\circ\text{C}/\text{W}$

## Electrical Characteristics (TA=25°C Unless Otherwise Noted)

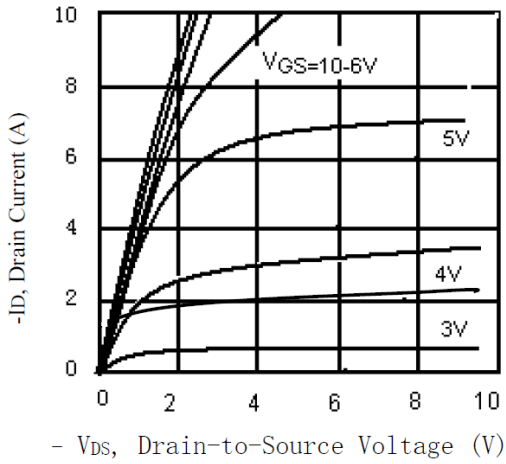
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
<b>On/off Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =250uA	-30	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 24V, V <sub>GS</sub> =0V	--	--	1	uA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V T <sub>J</sub> =55°C	--	--	10	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250uA	-1.2	--	-2	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
R <sub>DS(ON)</sub>	Drain-Source On-state Resistance(2)	V <sub>GS</sub> = -10V, I <sub>DS</sub> =-4.6A	--	45	50	mΩ
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> = -15V, Frequency=1.0MHz	--	1226	--	pF
C <sub>oss</sub>	Output Capacitance		--	187	--	
C <sub>rss</sub>	Reverse Transfer Capacitance		--	91	--	
<b>Switching Characteristics</b>						
t <sub>d(ON)</sub>	Turn-on Delay Time(1)	V <sub>DD</sub> =-15V, I <sub>D</sub> =- 1A, V <sub>GS</sub> =-10V, R <sub>GEN</sub> =6 Ω	--	5.9	--	ns
t <sub>r</sub>	Turn-on Rise Time(1)		--	6.9	--	
t <sub>d(OFF)</sub>	Turn-off Delay Time(1)		--	48	--	
t <sub>f</sub>	Turn-off Fall Time(1)		--	16	--	
Q <sub>g</sub>	Total Gate Charge(1)	V <sub>DS</sub> =-15V, V <sub>GS</sub> = -10V, I <sub>DS</sub> =-1.7A	--	9.8	--	nC
Q <sub>gs</sub>	Gate-Source Charge(1)		--	1.8	--	
Q <sub>gd</sub>	Gate-Drain Charge(1)		--	4.5	--	
<b>Diode Characteristics</b>						
V <sub>SD</sub>	Diode Forward Voltage(2)	I <sub>SD</sub> = -1.25A, V <sub>GS</sub> = 0	--	-0.8	-1.2	V

### NOTES:

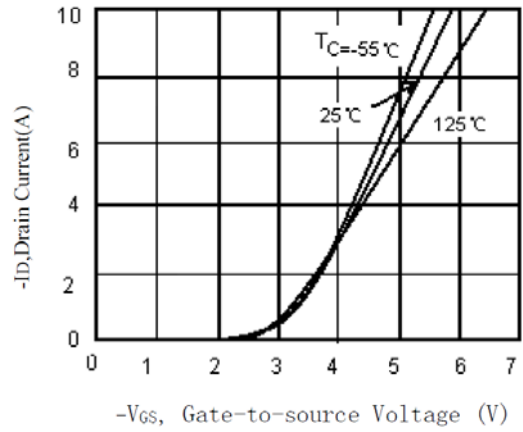
1. Independent of operating temperature.
2. Pulse Test : Pulse width ≤ 300 μ s, Duty cycle ≤ 2%
3. Surface Mounted on FR4 Board, t < 10 sec.

## Typical Performance Characteristics

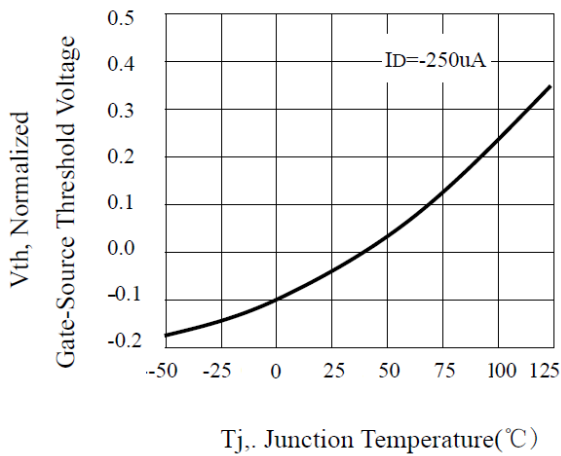
**Figure 1: Output Characteristics**



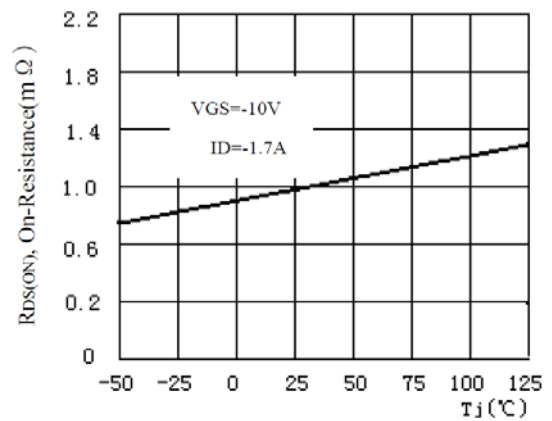
**Figure 2: Transfer Characteristics**



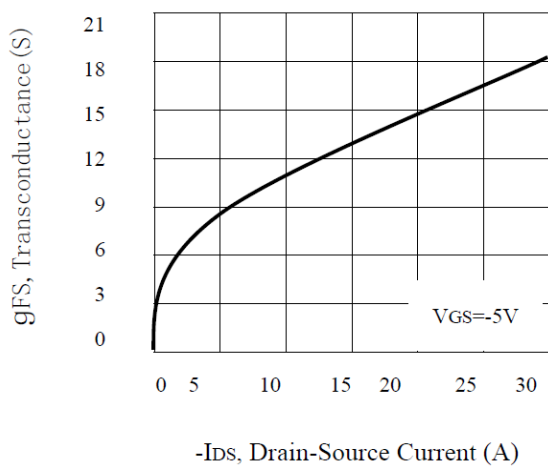
**Figure 3: Gate Threshold Variation With Temperature**



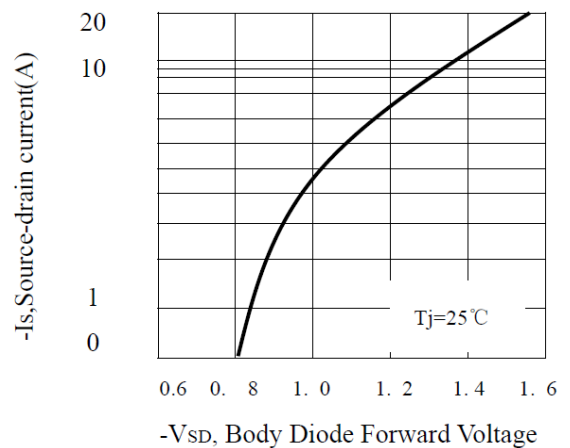
**Figure 4: On-Resistance Variation with Temperature**



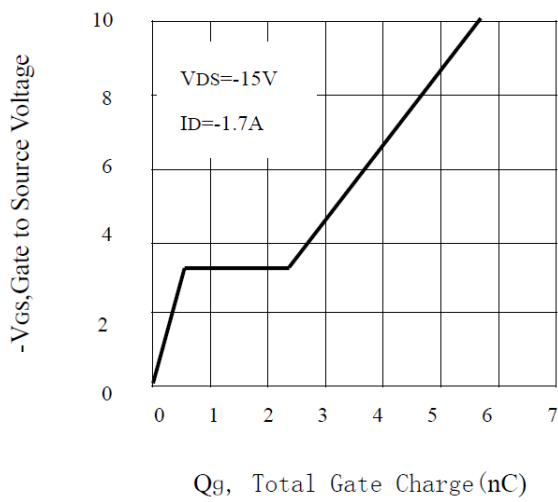
**Figure 5: Transconductance Variation With Drain Current.**



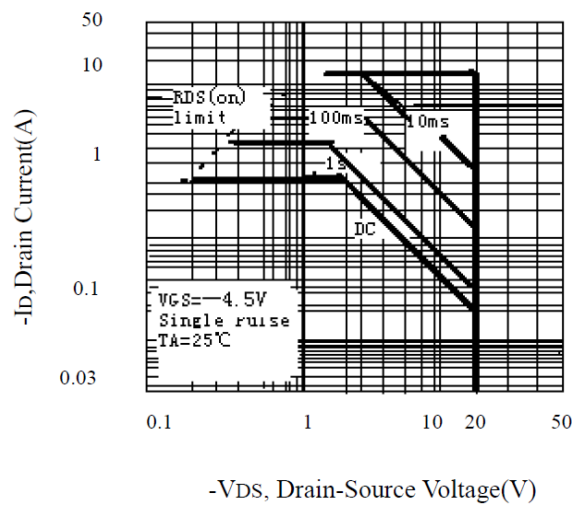
**Figure 6: Body Diode Forward Voltage Variation with Source Current**



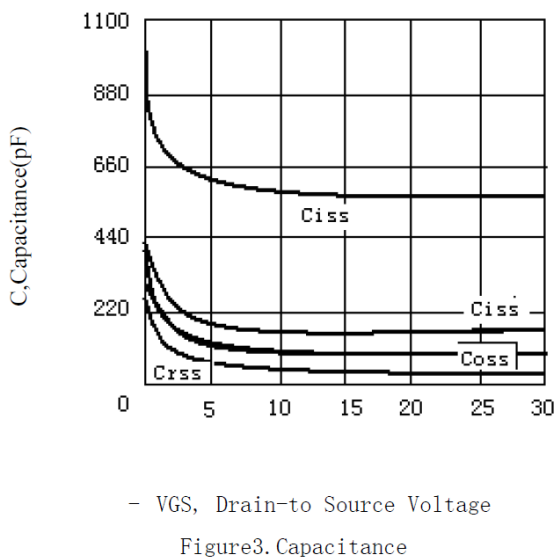
**Figure 7: Gate Charge**



**Figure 8: Maximum Safe Operating Area**

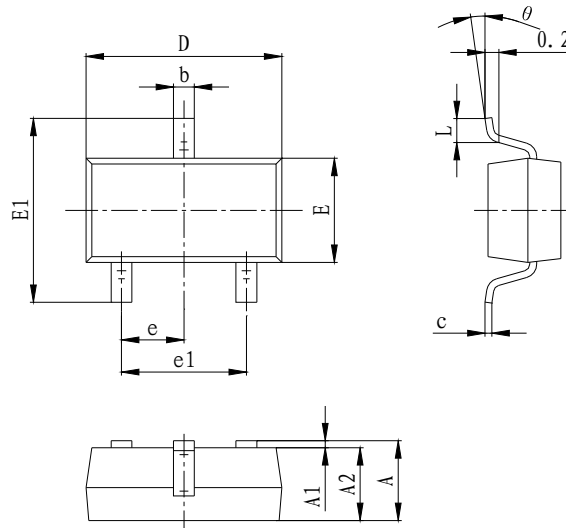


**Figure 9: Capacitance Characteristics.**



## Test circuits and Waveforms

**PACKAGE MECHANICAL DATA**  
**SOT-23 Package Dimension**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°