

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	42mΩ@10V	5A
	50mΩ@4.5V	

Feature

- Fast Switching
- Low Gate Charge and Rdson

Application

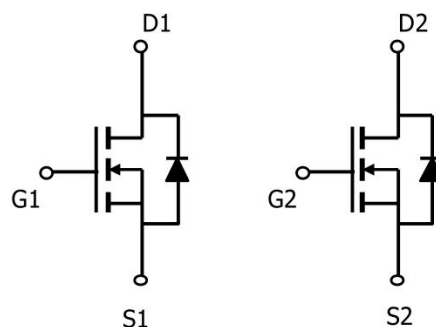
- Power switching application
- Hard Switched and High Frequency Circuits
- Uninterruptible Power Supply

Package

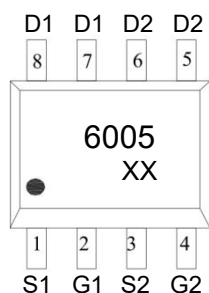


SOP-8

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current	I_{DM}	20	A
Power Dissipation	P_D	2	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

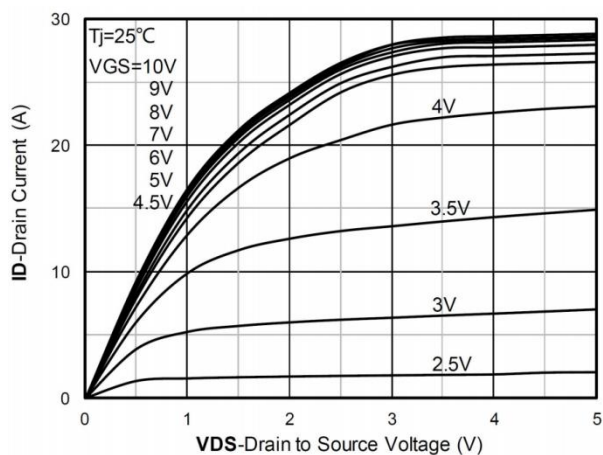
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$		32	42	m Ω
		$V_{GS}=4.5V, I_D=3A$		38	50	
Dynamic characteristics ¹⁾						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		590		pF
Output Capacitance	C_{oss}			60		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=4.5A$		14		nC
Gate-Source Charge	Q_{gs}			2.9		
Gate-Drain Charge	Q_{gd}			5.2		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=30V, V_{GS}=10V, I_D=2A$ $R_G=3\Omega$		5		nS
Turn-on rise time	t_r			2.6		
Turn-off delay time	$t_{d(off)}$			16.1		
Turn-off fall time	t_f			2.3		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				5	A
Diode Forward voltage	V_{DS}	$V_{GS}=0V, I_S=1A$			1.2	V
Reverse Recovery Time	T_{rr}	$I_S=5A, di/dt=100A/\mu s$ $T_J=25^{\circ}C$		24		nS
Reverse Recovery Charge	Q_{rr}			22		nC

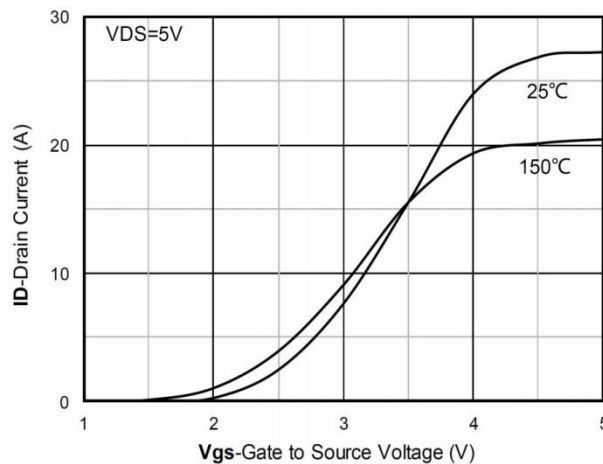
Notes:

1) Guaranteed by design, not subject to production testing.

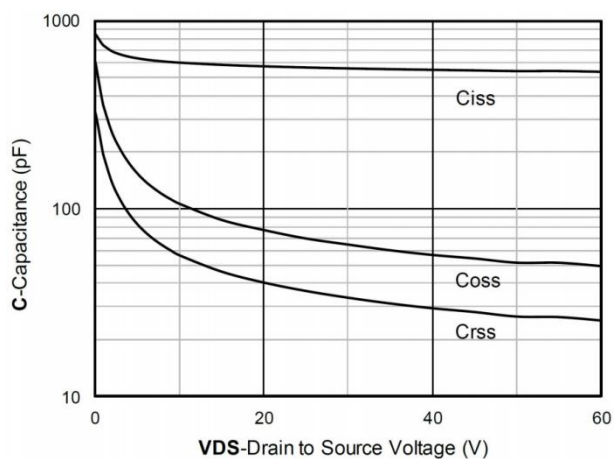
Typical Characteristics



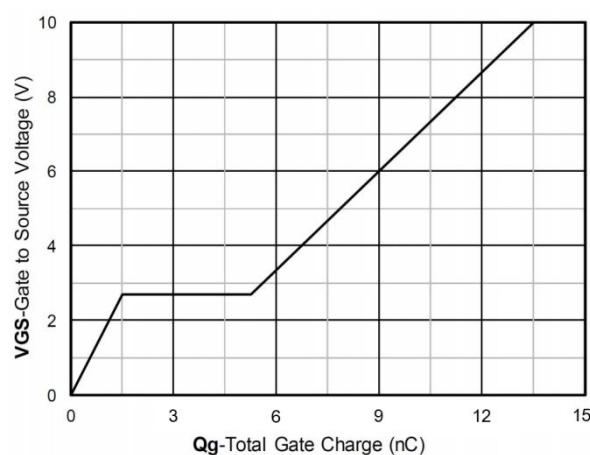
Output Characteristics



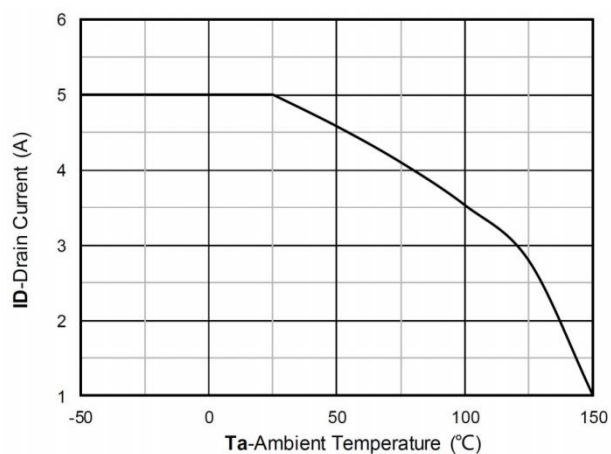
Transfer Characteristics



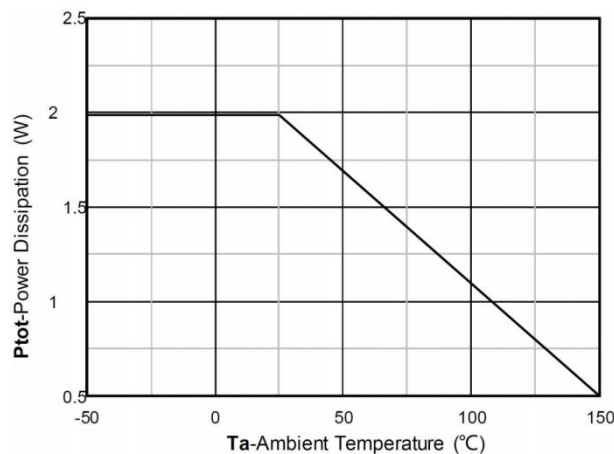
Capacitance Characteristics



Gate Charge

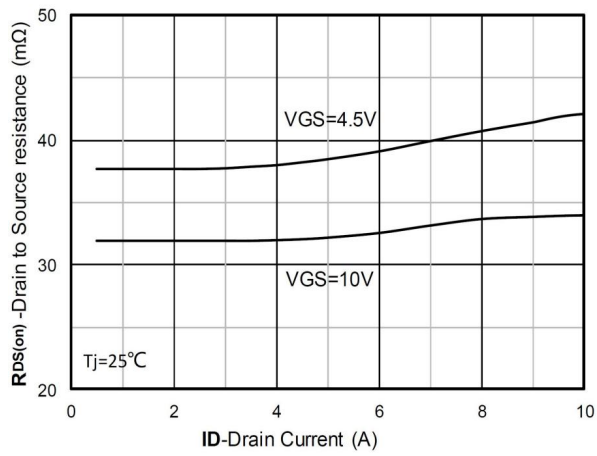


Current dissipation

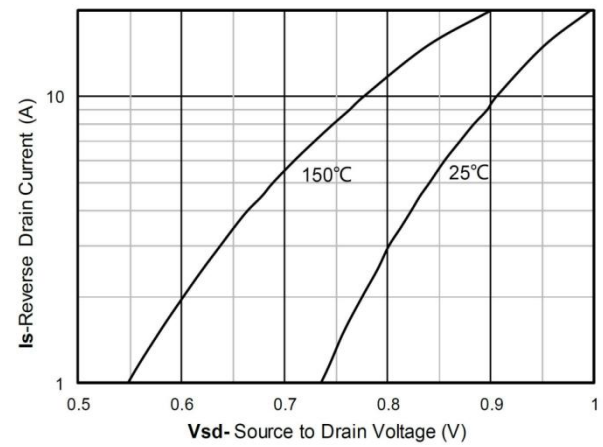


Power dissipation

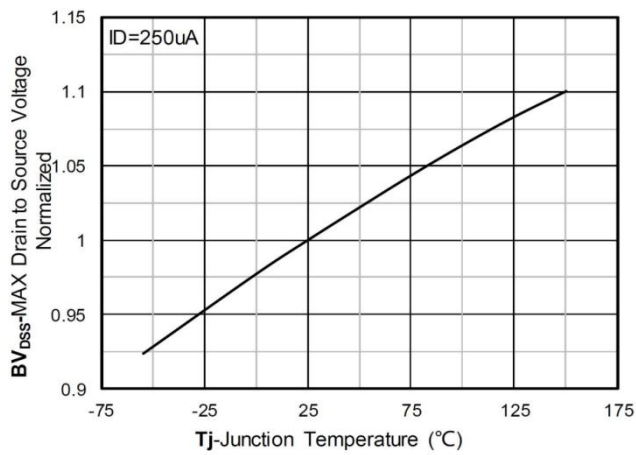
Typical Characteristics



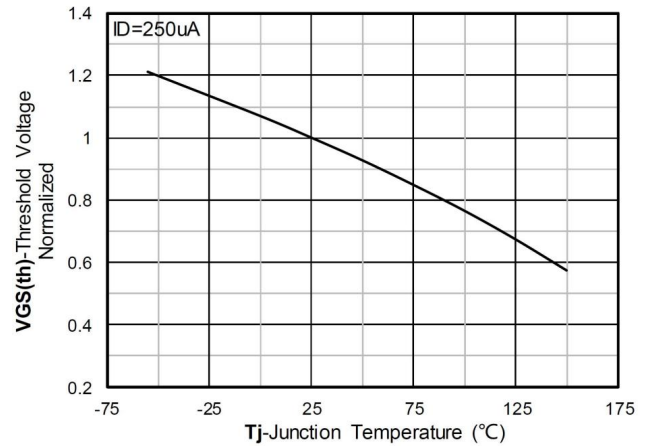
$R_{DS(on)}$ VS Drain Current



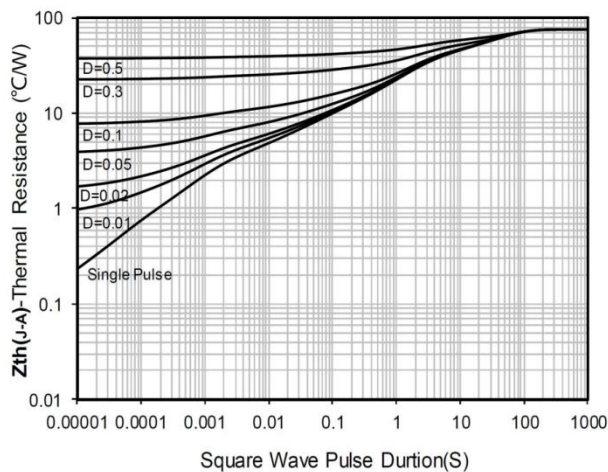
Forward characteristics of reverse diode



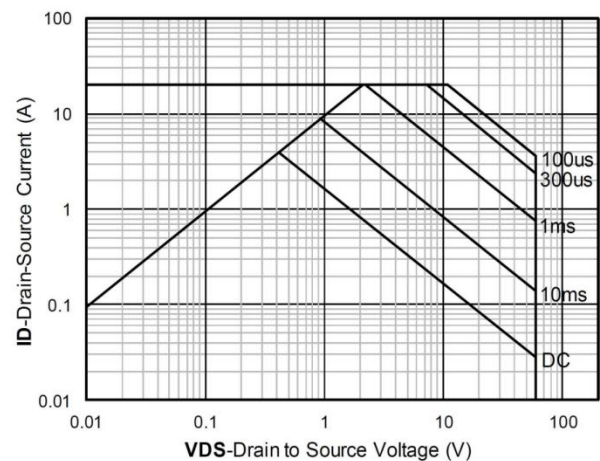
Normalized breakdown voltage



Normalized Threshold voltage

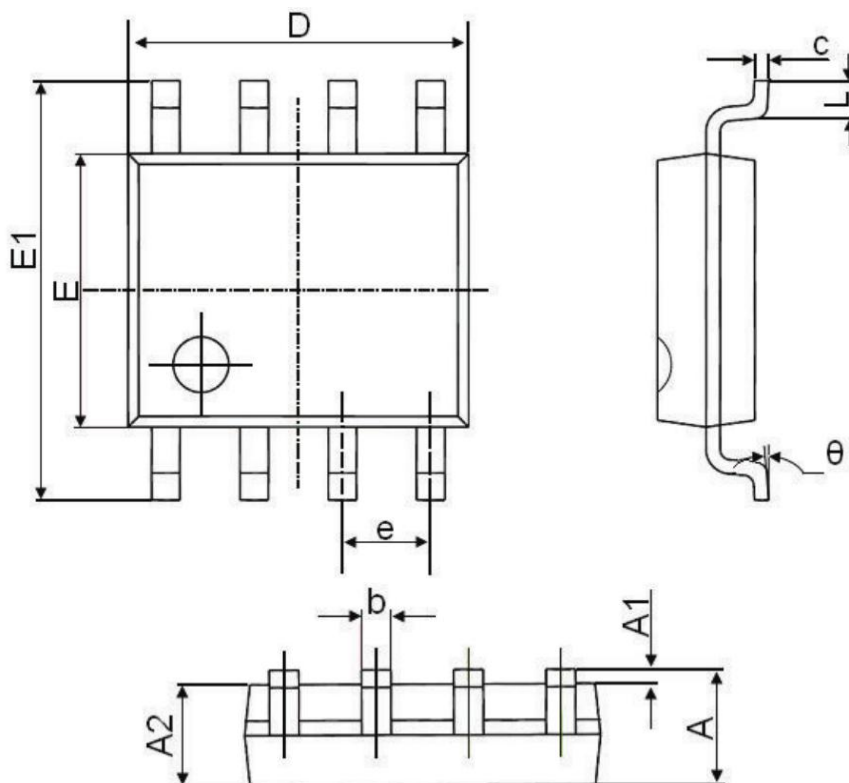


Maximum Transient Thermal Impedance



Safe Operation Area

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.800	5.000	0.189	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 REF.		0.050 REF.	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°