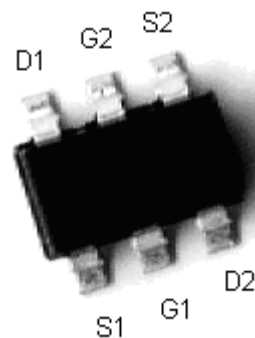


N- AND P-Channel Logic Level Enhancement Mode MOSFET

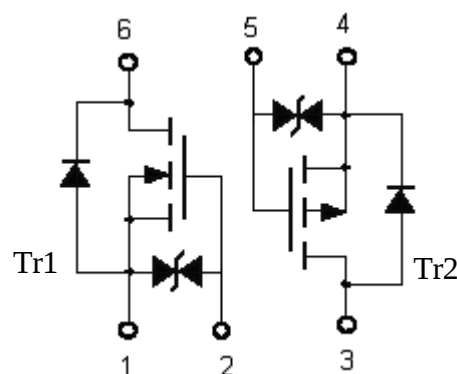
Features:

- Low on-resistance
- ESD protected
- High speed switching
- Low-voltage drive
- Pb-free package



SOT-363R

	N-CH	P-CH
BV_{DSS}	30V	-30V
$I_D @ V_{GS} = -4.5V, T_A = 25^\circ C$	0.45A	-0.45A
$R_{DS(on)}(typ.) @ V_{GS} = (-)4.5V$	0.86 Ω	0.98 Ω
$R_{DS(on)}(typ.) @ V_{GS} = (-)2.7V$	1.2 Ω	1.44 Ω



Ordering Information

Device	Package	Shipping
KWC6322S6R	SOT-363 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel

The following characteristics apply to both Tr1 and Tr2

Absolute Maximum Ratings (TA=25°C, unless otherwise noted)

Parameter	Symbol	Limits		Unit
		N-channel	P-channel	
Drain-Source Breakdown Voltage	BV _{DSS}	30	-30	V
Gate-Source Voltage	V _{GS}	±8	±8	V
Continuous Drain Current @T _A =25 °C, V _{GS} =4.5V(-4.5V)	I _D	0.45	-0.45	A
Continuous Drain Current @T _A =70 °C, V _{GS} =4.5V(-4.5V)	I _D	0.36	-0.36	A
Pulsed Drain Current (Note 1)	I _{DM}	1.8	-1.8	A
Power Dissipation @T _A =25°C	P _D	0.30		W
Power Dissipation @T _A =70°C		0.18		
Operating Junction and Storage Temperature Range	T _j ; T _{stg}	-55~+150		°C

Note : 1. Pulse width limited by maximum junction temperature.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Surface mounted on minimum pad of FR-4 board, t ≤ 5s.

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Ambient(PCB mounted) (Note)	R _{th,ja}	415	°C/W

Note : Surface mounted on minimum pad of FR-4 board, t ≤ 5s.

N-Channel Electrical Characteristics (Tj=25°C, unless otherwise noted)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	30	-	-	V	V _{GS} =0, I _D =250μA
V _{GS(th)}	0.5	0.8	1.2		V _{DS} =V _{GS} , I _D =250μA
I _{GSS}	-	-	±5	μA	V _{GS} =±8V, V _{DS} =0
I _{DSS}	-	-	1		V _{DS} =30V, V _{GS} =0
	-	-	10		V _{DS} =24V, V _{GS} =0 (T _j =70°C)
*R _{DS(ON)}	-	0.86	1.2	Ω	V _{GS} =4.5V, I _D =450mA
	-	1.2	1.6		V _{GS} =2.7V, I _D =300mA
*G _{FS}	-	0.6	-	S	V _{DS} =5V, I _D =450mA
Dynamic					
C _{iss}	-	33.5	-	pF	V _{DS} =15V, V _{GS} =0, f=1MHz
C _{oss}	-	6.1	-		
C _{rss}	-	2.5	-		
t _{d(ON)}	-	3	-	ns	V _{DS} =15V, I _D =450mA, V _{GS} =4.5V, R _G =50Ω
t _r	-	5	-		
t _{d(OFF)}	-	9	-		
t _f	-	5	-		

Qg	-	0.51	-	nC	V _{DS} =15V, I _D =450mA, V _{GS} =4.5V
Qgs	-	0.05	-		
Qgd	-	0.18	-		
Source-Drain Diode					
*I _S	-	-	0.45	A	
*I _{SM}	-	-	1.8		
*V _{SD}	-	0.9	1.2	V	V _{GS} =0V, I _S =450mA

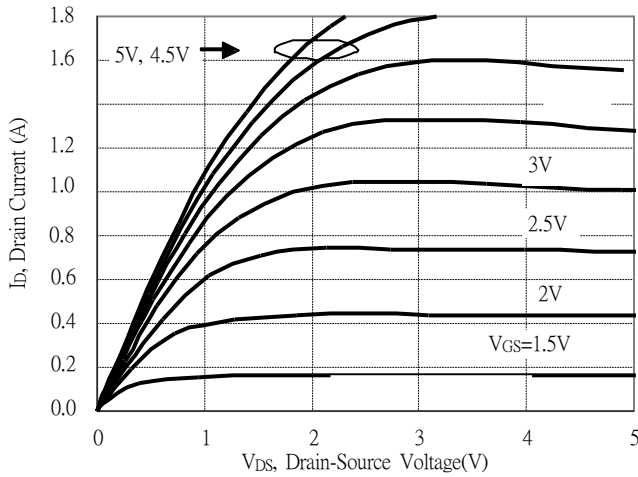
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

P-Channel Electrical Characteristics (T_j=25°C, unless otherwise noted)

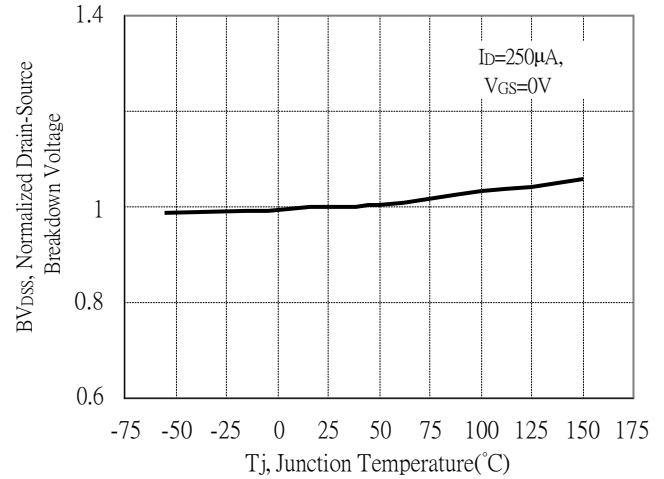
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-30	-	-	V	V _{GS} =0, I _D =-250μA
V _{GS(th)}	-0.5	-0.9	-1.2	V	V _{DS} =V _{GS} , I _D =-250μA
I _{GSS}	-	-	±5	μA	V _{GS} =±8V, V _{DS} =0
I _{DSS}	-	-	-1		V _{DS} =-30V, V _{GS} =0
	-	-	-10		V _{DS} =-24V, V _{GS} =0 (T _j =70°C)
*R _{DS(ON)}	-	0.98	1.3	Ω	V _{GS} =-4.5V, I _D =-450mA
	-	1.44	1.9		V _{GS} =-2.7V, I _D =-300mA
*G _{FS}	-	0.6	-	S	V _{DS} =-5V, I _D =-450mA
Dynamic					
C _{iss}	-	55.6	-	pF	V _{DS} =-15V, V _{GS} =0, f=1MHz
C _{oss}	-	9.3	-		
C _{rss}	-	5.7	-		
t _{d(ON)}	-	5	-	ns	V _{DS} =-15V, I _D =-450mA, V _{GS} =-4.5V, R _G =50Ω
t _r	-	6	-		
t _{d(OFF)}	-	15	-		
t _f	-	11	-		
Q _g	-	0.75	-	nC	V _{DS} =-15V, I _D =-450mA, V _{GS} =-4.5V
Q _{gs}	-	0.09	-		
Q _{gd}	-	0.25	-		
Source-Drain Diode					
*I _S	-	-	-0.45	A	
*I _{SM}	-	-	-1.8		
*V _{SD}	-	-0.89	-1.2	V	V _{GS} =0V, I _S =-450mA

N-Channel Typical Characteristics

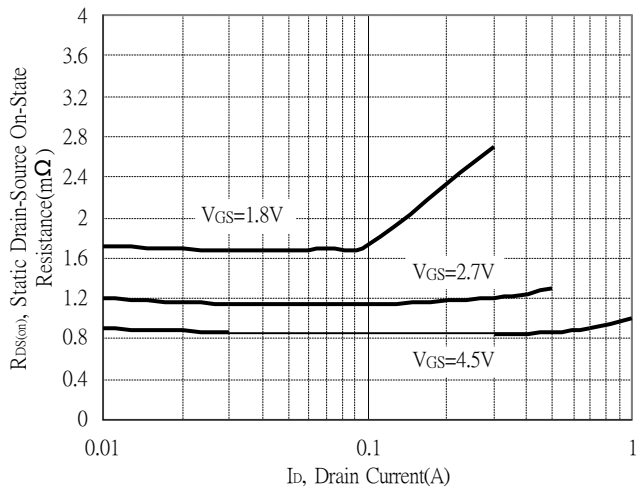
Typical Output Characteristics



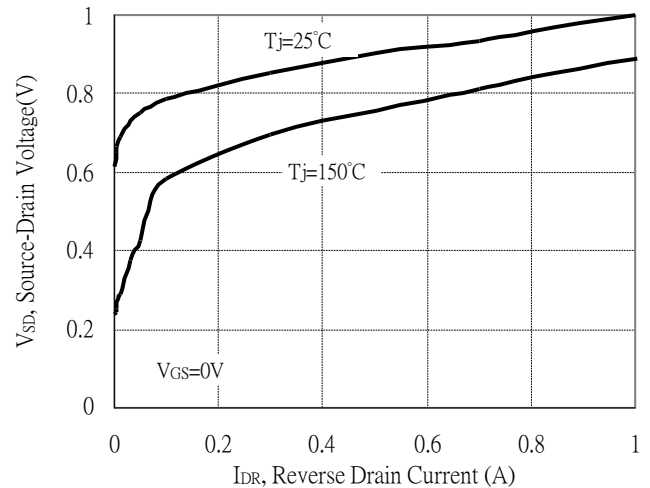
Breakdown Voltage vs Ambient Temperature



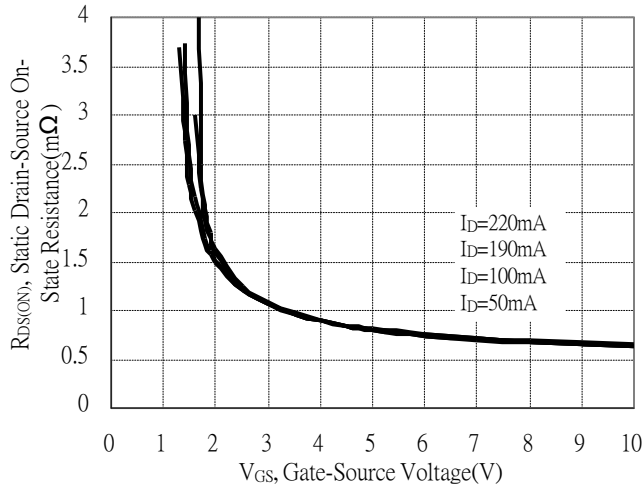
Static Drain-Source On-State resistance vs Drain Current



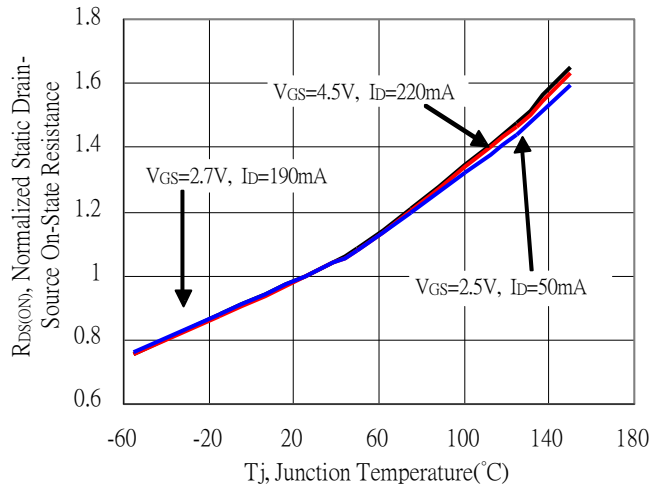
Reverse Drain Current vs Source-Drain Voltage



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

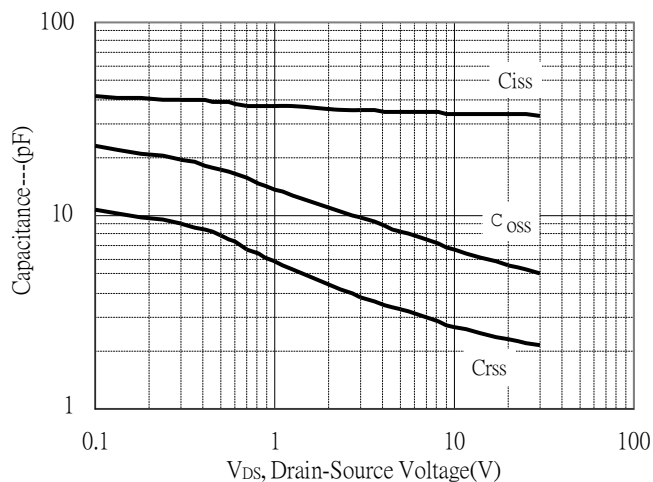


Drain-Source On-State Resistance vs Junction Temperature

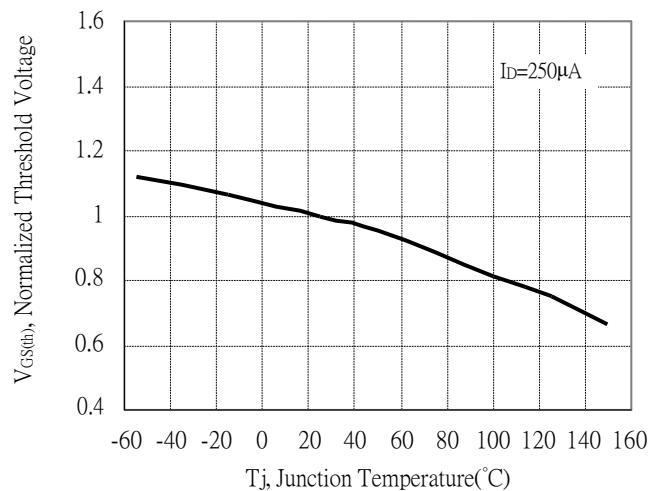


N-Channel Typical Characteristics(Cont.)

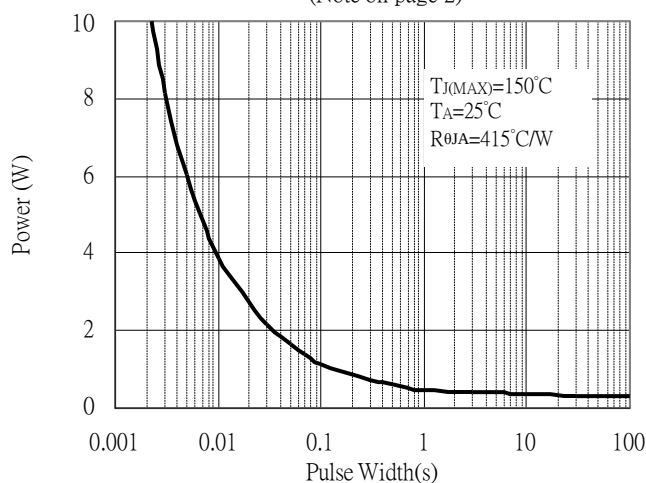
Capacitance vs Drain-to-Source Voltage



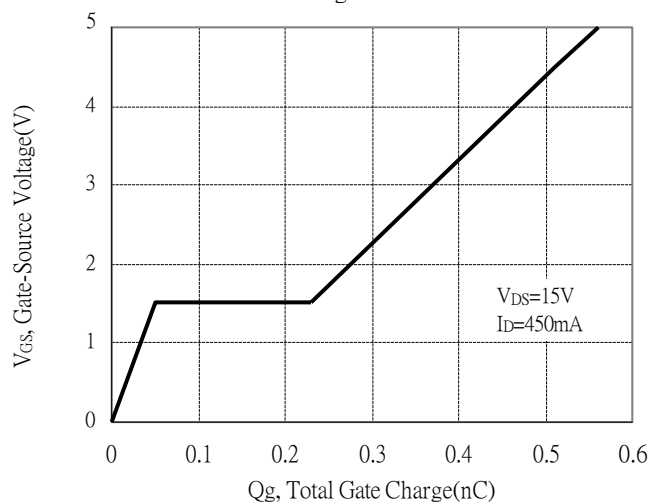
Threshold Voltage vs Junction Temperature



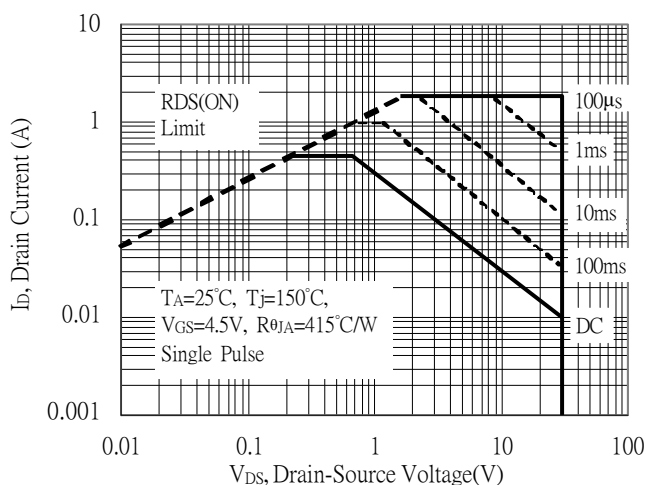
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)



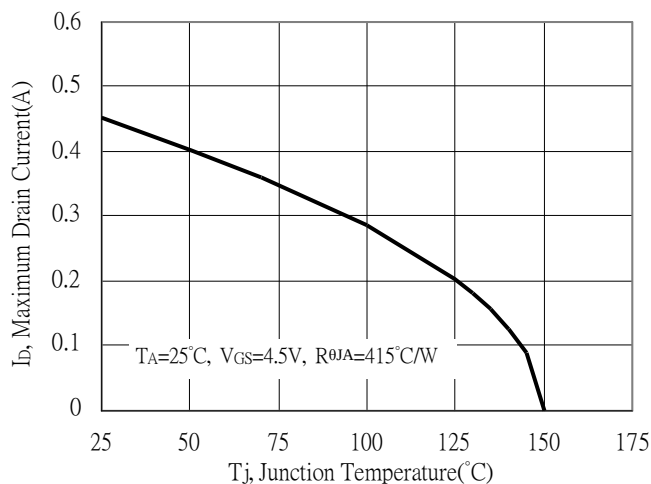
Gate Charge Characteristics



Maximum Safe Operating Area

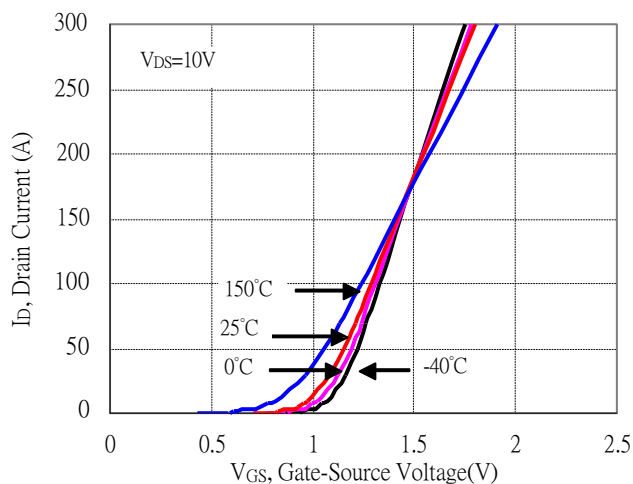


Maximum Drain Current vs Junction Temperature

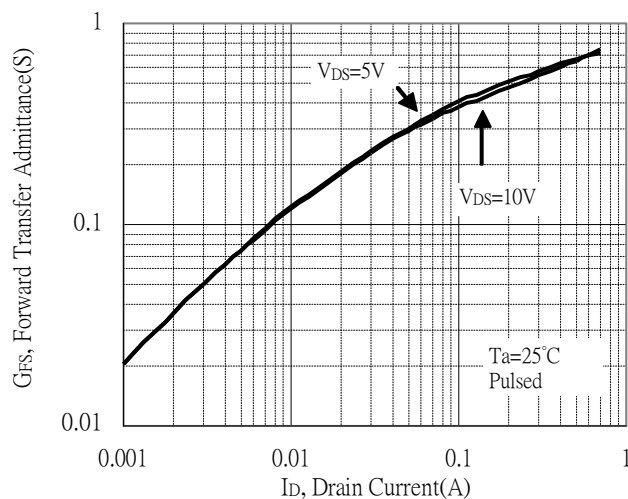


N-Channel Typical Characteristics(Cont.)

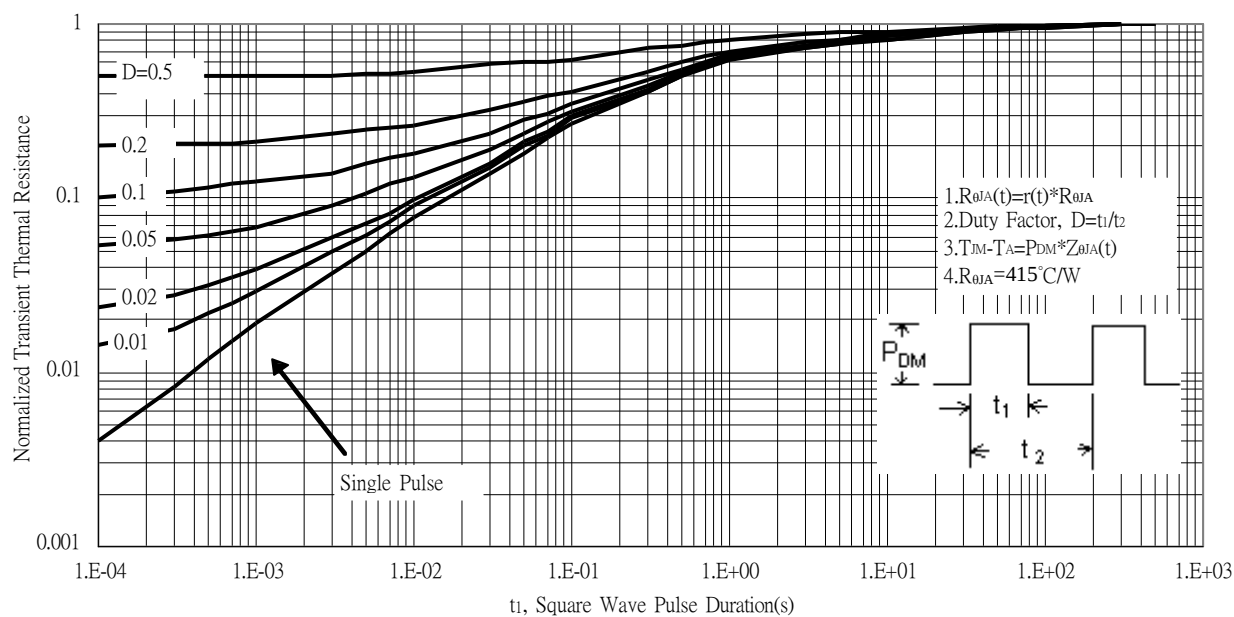
Typical Transfer Characteristics



Forward Transfer Admittance vs Drain Current

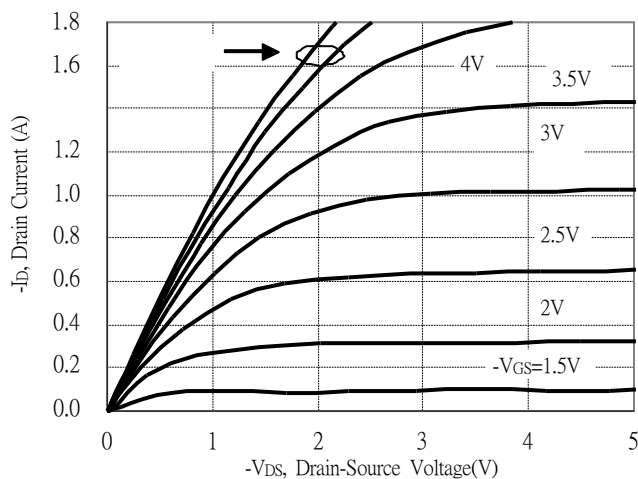


Transient Thermal Response Curves

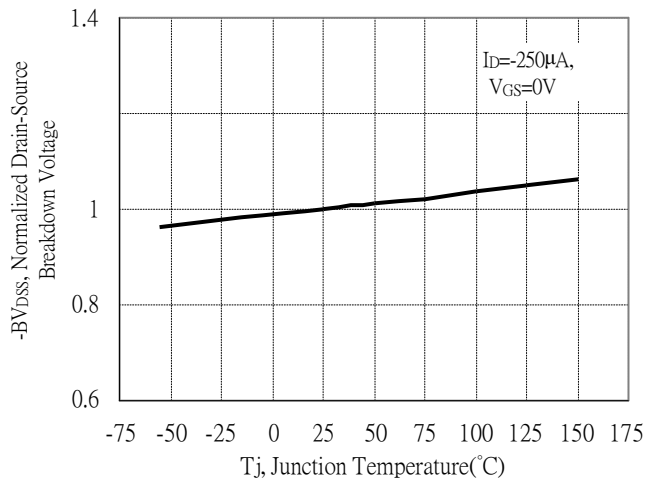


P-Channel Typical Characteristics

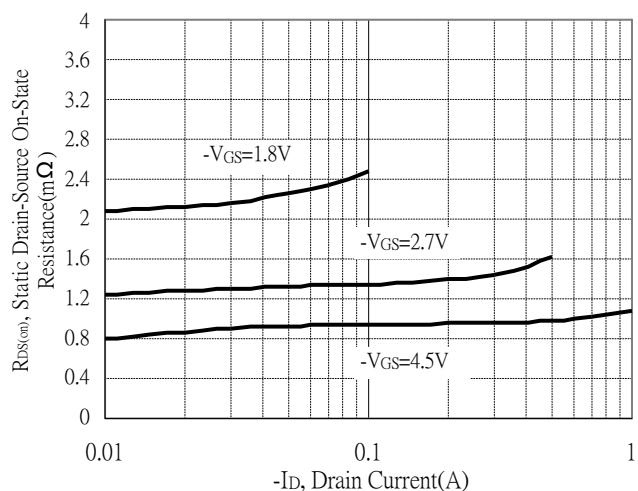
Typical Output Characteristics



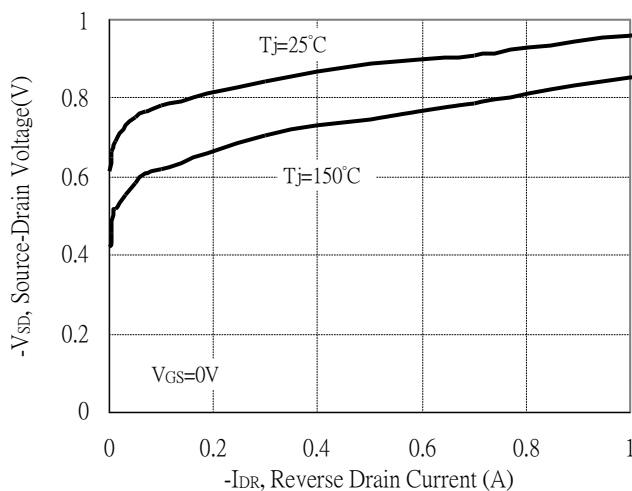
Breakdown Voltage vs Ambient Temperature



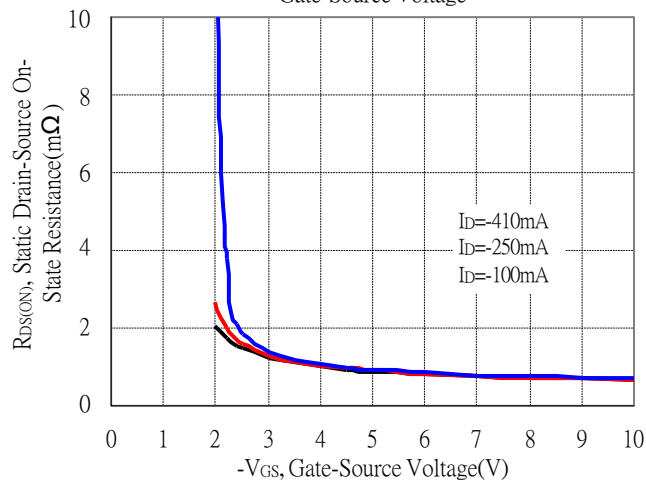
Static Drain-Source On-State resistance vs Drain Current



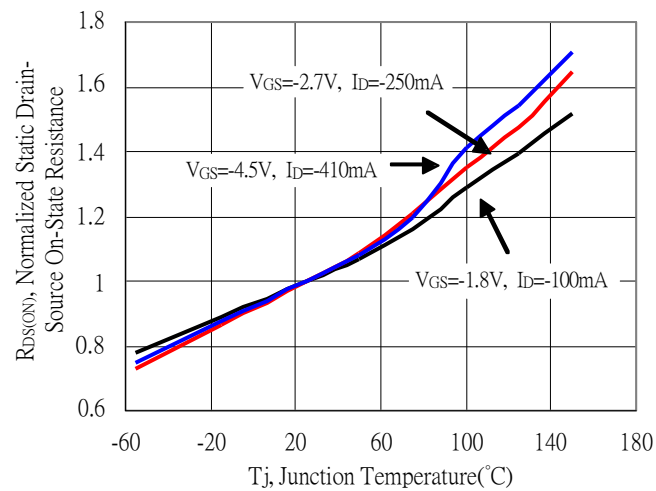
Reverse Drain Current vs Source-Drain Voltage



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

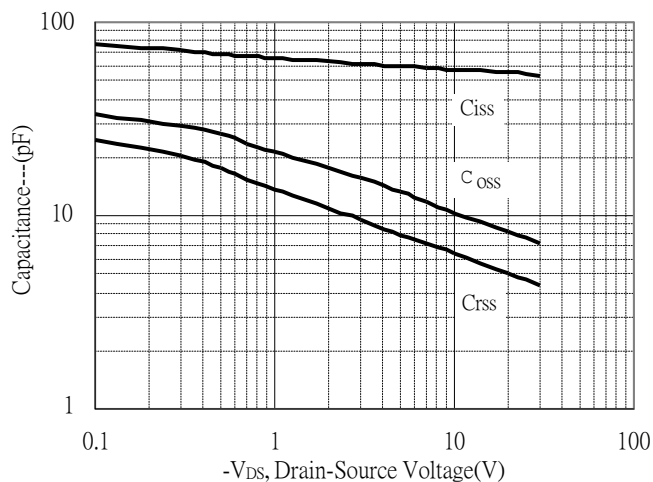


Drain-Source On-State Resistance vs Junction Temperature

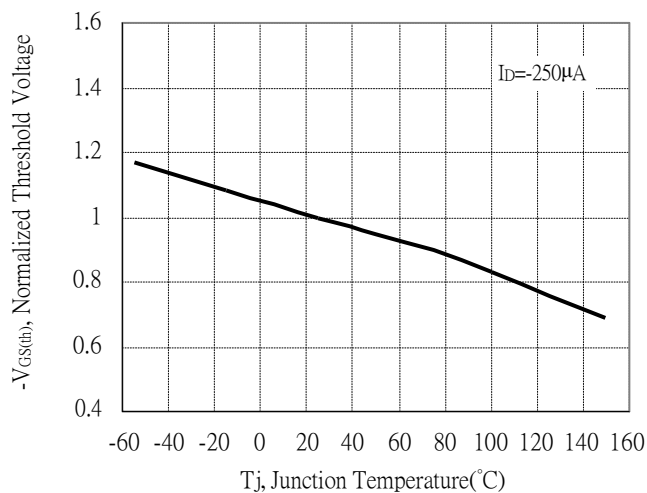


P-Channel Typical Characteristics(Cont.)

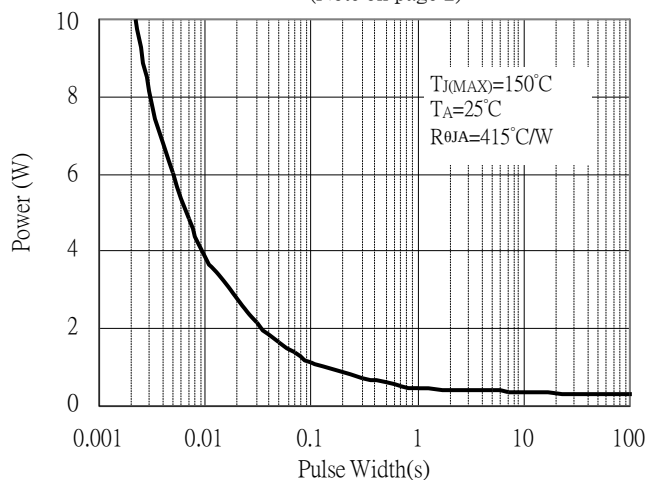
Capacitance vs Drain-to-Source Voltage



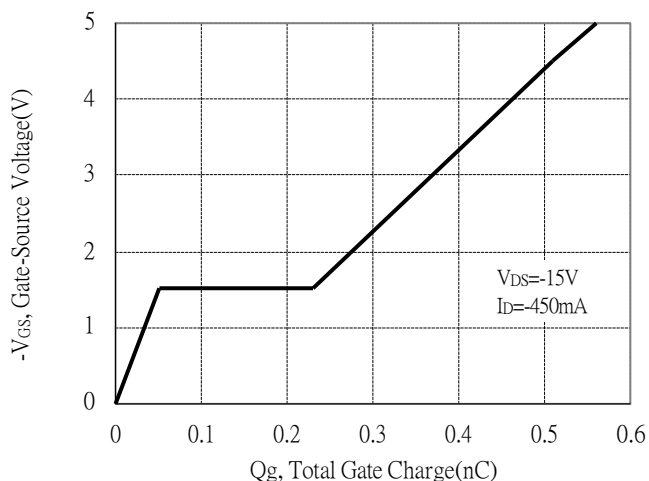
Threshold Voltage vs Junction Temperature



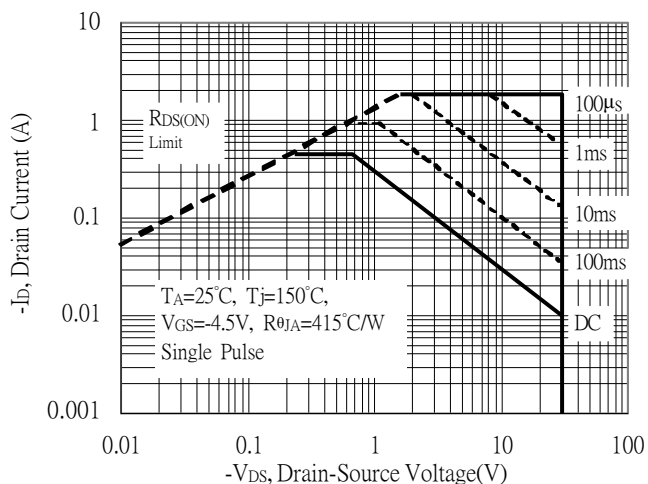
Single Pulse Power Rating, Junction to Ambient
(Note on page 2)



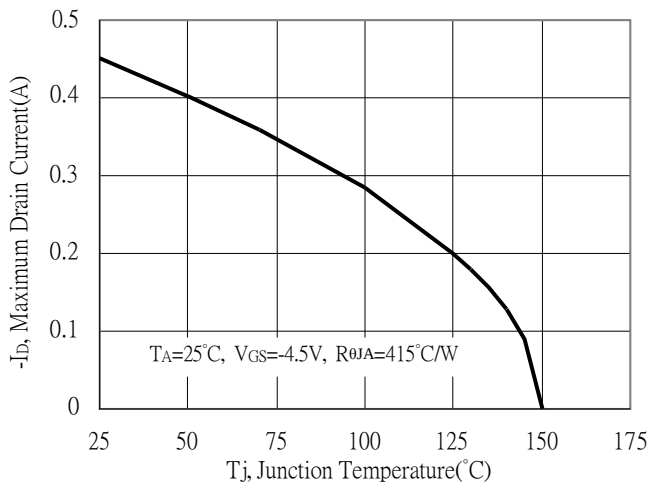
Gate Charge Characteristics



Maximum Safe Operating Area

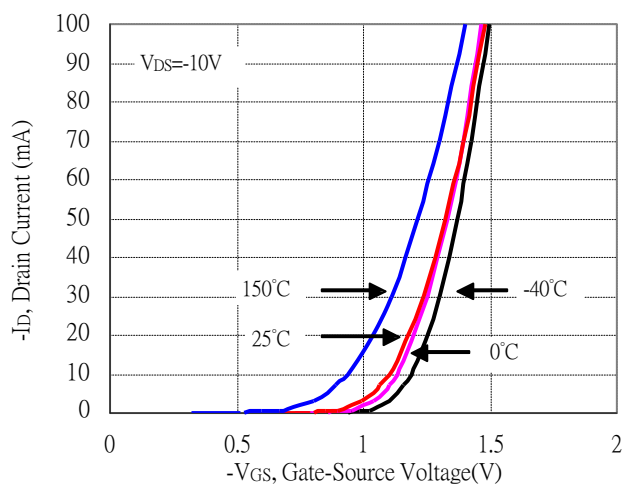


Maximum Drain Current vs Junction Temperature

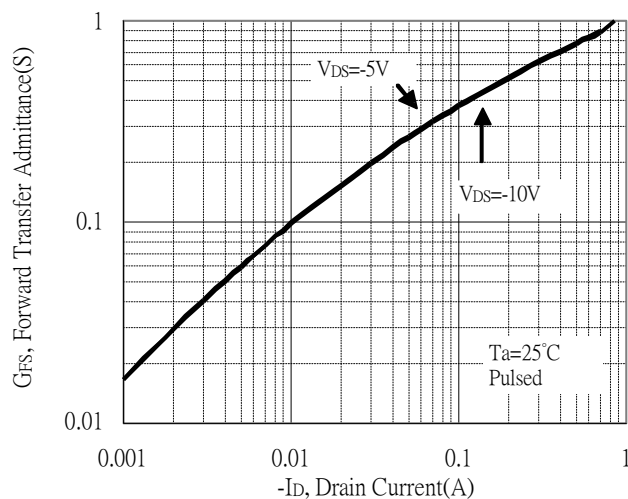


P-Channel Typical Characteristics(Cont.)

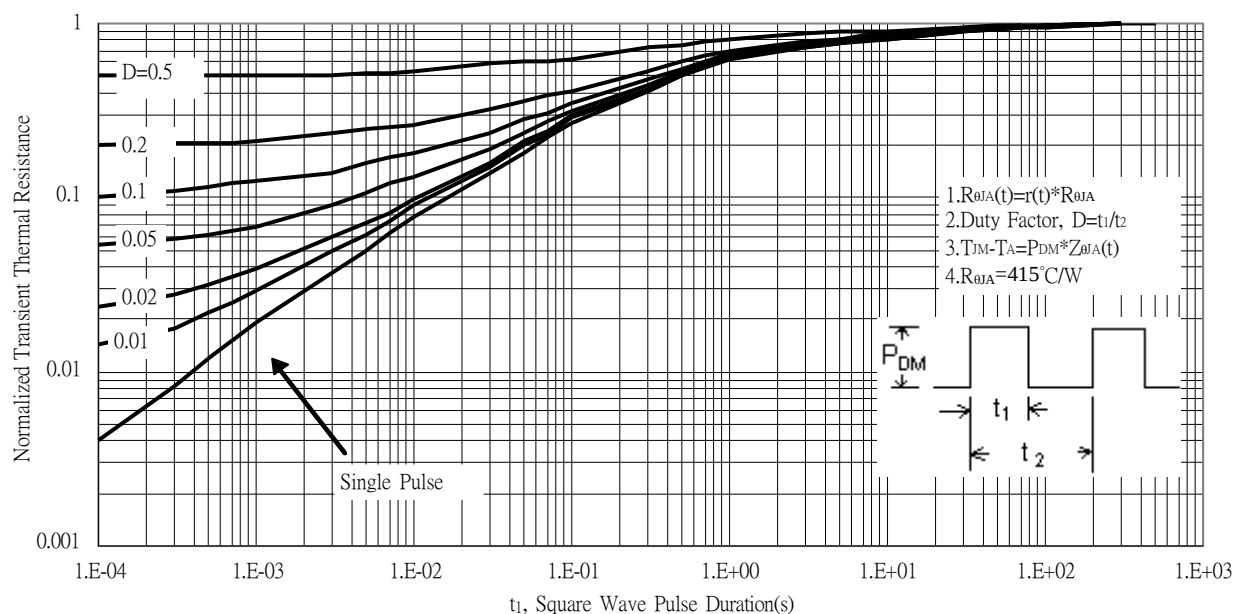
Typical Transfer Characteristics



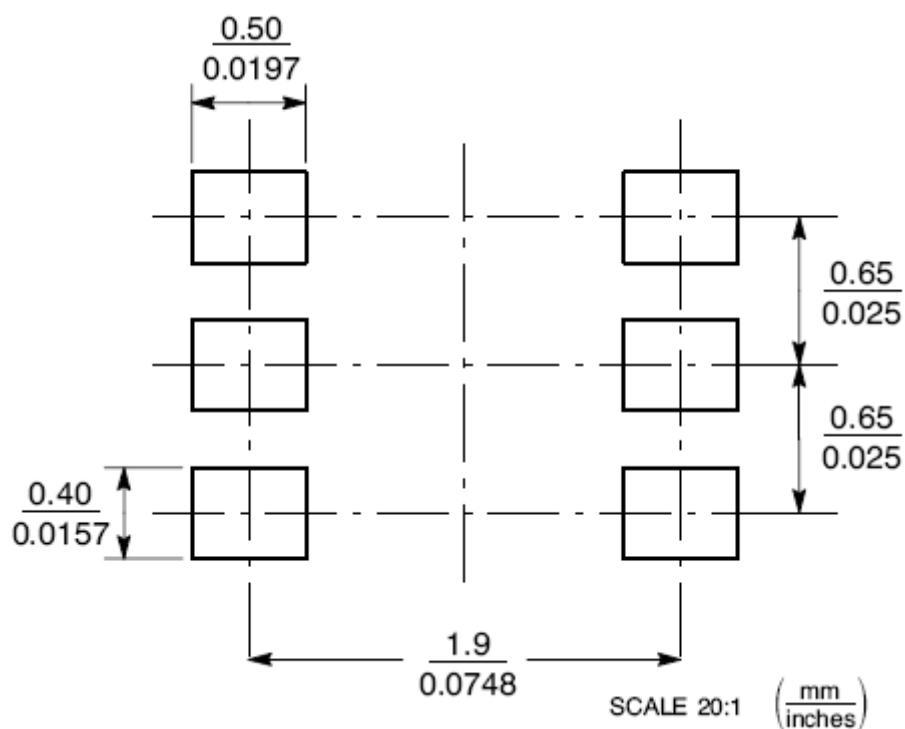
Forward Transfer Admittance vs Drain Current



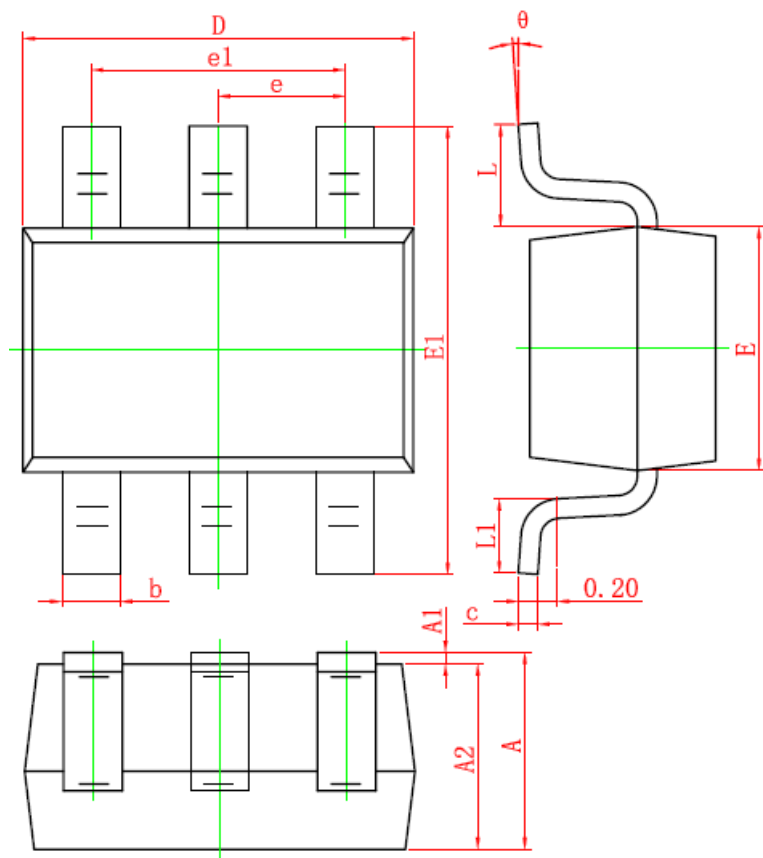
Transient Thermal Response Curves



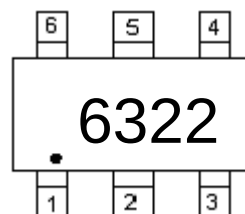
Recommended Soldering Footprint



SOT-363 Dimension



Marking:



6-Lead SOT-363R Plastic
 Surface Mounted Package
 Code: S6R

Style:

Pin 1. Source1 (S1)
 Pin 2. Gate1 (G1)
 Pin 3. Drain2 (D2)
 Pin 4. Source2 (S2)
 Pin 5. Gate2 (G2)
 Pin 6. Drain1 (D1)

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650	TYP	0.026	TYP
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.150	0.350	0.006	0.014	L	0.525	REF	0.021	REF
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					